EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-01

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Support for Fish Studies

Contractor: TETRA TECH, INC.

Specify Section and paragraph of Contract SOW: 3.2, 3.4, 3.7, 3.8, 3.9, 3.10,3.11, 3.12, 3.14,

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 07/01/2017 To 06/30/2018

Comments:
Additional SOW sections: 4.2, 4.4

Work shall not begin until July 1, 2017.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2): ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 08/05/2014 To 06/30/2018		0
This Action:		6,200
Total:		6,200

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Leanne Stahl (Signature) (Date)		Branch/Mail Code: Phone Number: 202-566-0404 FAX Number:
Project Officer Name: Thomas Gardner (Signature) (Date)		Branch/Mail Code: Phone Number: 202-566-0386 FAX Number:
Other Agency Official Name: (Signature) (Date)		Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Courtney Stallworth Courtney Stallworth ELECTRONIC SIGNATURE (Signature)	06/28/2017 (Date)	Branch/Mail Code: Phone Number: 513-487-2002 FAX Number:

Performance Work Statement
Contract # EP-C-14-016
Work Assignment # 3-01

I. TITLE: Support for Fish Contamination Studies

II. WORK ASSIGNMENT COR:

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III. LEVEL OF EFFORT: 6200 hours

IV. PERFORMANCE PERIOD: July 1, 2017 through June 30, 2018

V. BACKGROUND:

The U.S. Environmental Protection Agency's (EPA's) Office of Science and Technology (OST) within the Office of Water (OW) is conducting multiple fish contamination studies. The first is a national probabilistic survey of chemical residues in freshwater fish tissue called the National Study of Chemical Residues in Lake Fish Tissue (or National Lake Fish Tissue Study). This study was designed to estimate the national distribution of the mean levels of selected persistent, bioaccumulative, and toxic (PBT) chemical residues in fish tissue from lakes and reservoirs of the conterminous United States. It generated data on the largest set of PBT chemicals studied in fish to date (314 analytes, including the full complement of polychlorinated biphenyl or PCB congeners and 46 polybrominated diphenyl ether or PBDE congeners). Results from this statistically based study allowed EPA to estimate the percentage of lakes and reservoirs across the country with fish tissue concentrations above levels of concern for human health. These results also provided the first national estimates of median concentrations and distributions for 314 chemicals in fish and defined a national freshwater fish contamination baseline for tracking pollution control progress. EPA completed external peer review of the draft final National Lake Fish Tissue Study report during 2007 and published results from the National Lake Fish Tissue Study in the technical journal *Environmental Monitoring and Assessment* in March 2009. During fall 2009, EPA completed production of the final report and released the report to the

public. The polybrominated diphenyl ether (PBDE) results from this study were published in *Environmental Monitoring and Assessment* in 2013, which completed the technical work for the study. EPA is continuing to respond to requests for National Lake Fish Tissue Study data.

The National Pilot Study of Pharmaceuticals and Personal Care Products (PPCPs) in Fish Tissue is the second fish contamination study undertaken by OST. OST initiated this pilot study in 2006 to investigate the occurrence of PPCP chemicals in fish tissue. The targeted design for the study involved collecting fish samples from five effluent-dominated streams in the vicinity of wastewater treatment plant (WWTP) discharges (and one reference site) and analyzing fillets and livers for 24 pharmaceutical compounds using a high performance liquid chromatography-tandem mass spectrometry (HPLC-MS/MS) method and fillets only for 12 personal care products using a gas chromatography-tandem mass spectrometry (GC-MS/MS) method. Initial fish collection was completed at all sites by November 2006 (Chicago, IL; Dallas, TX; Orlando, FL; Phoenix, AZ; West Chester, PA; and Gila R., NM [reference site]). A second fish collection effort was completed on March 28, 2007 for the Chicago site only. All the tissue samples have been analyzed and the data have been reviewed for fish collected during this study. EPA developed the final report for this study during a previous work assignment, but plans to release the report during the current contract period.

In 2008, OST began a third fish contamination study by participating in EPA's 2008-09 National Rivers and Streams Assessment (NRSA). The Office of Wetlands, Oceans, and Watersheds (OWOW) within OW had the overall responsibility for conducting this survey. This national statistically based survey included approximately 1800 sites in the lower 48 states that consisted of about 900 boatable river reaches and about 900 wadeable stream reaches. The study design included a statistical subset of about 180 urban rivers based on the site classification of urban developed for the design and the designation of 5th order streams or above for rivers. Several types of samples were collected at each site by federal, state, or contractor teams during 2008 and 2009 to assess water chemistry, physical habitat, biological community integrity, pathogen contamination in water, and chemical contamination in fish tissue. OST focused its efforts initially on supporting collection of fish and ambient water samples at the urban river sampling locations, on developing protocols for fish tissue preparation, and on providing technical oversight of fish preparation activities being conducted for the 2008-09 NRSA. Ultimately, OWOW-sponsored field crews collected whole fish samples for fillet tissue analysis at 542 river sites (164 urban river sites and 378 nonurban river sites) in the two field sampling seasons. During 2010, OST completed fish preparation quality assurance (QA), analysis of urban river water and fish tissue samples for perfluorinated compounds (PFCs), and review (verification and validation) of analytical results for PFCs. In 2011, OST initiated QA reviews of data for other contaminants of concern from the 2008-09 NRSA urban river samples (e.g., musks) and for legacy contaminants from the 542 urban and nonurban river samples (e.g., mercury and selenium) and prepared files in 2012 for statistical analysis of three sets of the analytical data (mercury selenium, and PFCs). OST completed QA reviews of NRSA analytical data for the organic compounds (PCBs, PBDEs, and pesticides) and prepared files for statistical analysis of these data in 2013. PFC and mercury results for the 2008-09 NRSA fish tissue indicator were published in 2014 and 2015, respectively. The 2008-09 NRSA fish tissue indicator results for the organic chemicals (PCBs, PBDEs, and pesticides) were published in 2017.

The fourth study, a statistically based survey of fish contamination relevant to human health in the Great Lakes, was conducted under EPA's 2010 National Coastal Condition Assessment (NCCA). OST, the Great Lakes National Program Office (GLNPO), and the Office of Research and Development (ORD) collaborated to conduct this study, referred to as the 2010 Great Lakes Human Health Fish Tissue Study (2010 GLHHFTS). In 2010, the NCCA in the Great Lakes involved sampling 225 nearshore sites at depths of up to 30 m or at distances up to 5 km from shore in the five Great Lakes (45 sites per lake) for a number of indicators, including fish tissue for ecological applications. To generate data for the human health study, additional fish composite samples were collected at a subset of 157 sites (about 30 sites per lake). Planning for the GLHHFTS began in August 2009. OST completed training and sample collection for the GLHHFTS in 2010 and fish tissue preparation (i.e., filleting and homogenizing the fillet tissue from the fish samples) in 2011. In 2012, EPA completed analysis of the fillet samples for PBDEs, PFCs, and fatty acids and the data quality reviews for these analytical results. EPA completed tissue analysis and data quality reviews for mercury and PCBs in 2013, along with statistical analysis of the full suite of GLHHFTS fish tissue contaminant data (mercury, PCBs, PBDEs, and PFCs). PFC results were published in 2014 and fatty acid data were published in 2017. EPA is focusing on reporting the remaining GLHHFTS data (mercury, PCBs, and PBDEs) by 2018.

OST's fifth fish contamination study consists of a statistically based re-assessment of fish fillet contamination in U.S. rivers. This study provides the opportunity to develop trends data for contaminant levels in river fish. In the spring of 2012, OST began a series of activities for planning participation in EPA's 2013-14 National Rivers and Streams Assessment (2013-14 NRSA). As for the 2008-09 NRSA, OWOW has the lead responsibility for conducting this survey. The full scope for most of the 2013-2014 NRSA indicators involves sample collection at about 1800 probability-based river and stream reaches throughout the lower 48 states. Initially, OST coordinated with OWOW to obtain whole fish samples from statistically representative subsets of 409 5th order or greater (i.e., river) sites sampled previously during the 2008-09 NRSA and 42 new major river sites. The actual field sampling effort during 2013 and 2014 yielded 361 human health fish samples. OST analyzed fillet tissue from each sample for mercury and PFCs and from a statistically representative subset of about 224 samples for PCBs. Fillet sample preparation, fillet tissue analysis, and data quality review of the analytical results were completed in 2015. During 2016, EPA completed statistical analysis of the tissue data. Development of a technical journal article reporting the results for mercury, PCBs, and PFCs is currently underway.

In 2014, EPA began planning for the 2015 NCCA, which includes the 2015 Great Lakes Human Health Fish Fillet Tissue Study (2015 GLHHFFTS) under the Great Lakes portion of the NCCA. The 2015 GLHHFFTS is OST's sixth fish contamination study, and it consists of a statistically based re-assessment of fish fillet contamination in the Great Lakes. This study provides the opportunity for developing trends data for contaminant levels in Great Lakes fish. In 2015, OST completed logistics planning, training, and fish sample collection (except for fish samples from a couple sites in Lake Michigan) for the 2015 GLHHFFTS. During 2016, OST provided support for the following activities: completing the Great Lakes fish sample collection effort in Lake Michigan; preparing fillet tissue samples from the whole fish samples collected for the 2015

GLHHFFTS; and analyzing the fillet samples for mercury, PCBs, and PFCs. EPA anticipates completion of fillet tissue analyses for dioxins/furans and fatty acids, analytical data quality reviews for both data sets, and statistical analysis of the dioxin and furan fillet tissue data in 2017. Data reporting will continue through 2018.

VI. SCOPE OF WORK:

All activities described in the performance work statement (PWS) for this work assignment (WA) fall under the following numbered categories in the PWS for Contract Number EP-C-14-016:

3.2	Economic and Statistical Analyses
3.4	Technical Guidance, Report Development, and General Program Analysis
3.7	Environmental Assessments
3.8	Field Sampling
3.9	Laboratory Analysis
3.10	Workshops, Conferences, Training, and Logistical Support
3.11	Expert/Peer Review Support.
3.12	Public Outreach and Technology Transfer
3.14	Preparation of Presentation Materials
4.2	Quality Assurance Project Plans
4.4	Quality Assurance Reporting

The purpose of this work assignment is to provide support for ongoing EPA fish contamination studies, for planning and implementing a human health fish tissue study under EPA's 2018-19 NRSA, and for planning and implementing a new Fish Plug Evaluation Study under eight task areas, including Work Plan Development (Task 1); Support for QA/QC Development and Implementation (Task 2); Support for Training, Meetings, Conferences, and Workshops (Task 3); Support for Planning, Organizing, Implementing, and Reporting Field Sampling Activities (Task 4); Support for Laboratory Preparation of Fish Tissue Samples (Task 5); Support for Compiling, Integrating, Analyzing, Displaying, and Distributing Fish Study Data (Task 6); Support for Development of Public Outreach Materials (Task 7); and Support for Development of Final Study Reports (Task 8). Specific activities to be performed under each task are described below.

Task 1: Work Plan Development

The Contractor shall develop a work plan to address the tasks identified in this work assignment, including a detailed budget and schedule. The Contractor shall also submit monthly invoices and progress reports in accordance with contract requirements.

Task 2: Support for QA/QC Development and Implementation

The Contractor shall provide support for the following Quality Assurance/Quality Control (QA/QC) activities:

1. Development and review of Quality Assurance Project Plans (QAPPs)
2. Review of field sampling and fish sample preparation data
3. Verification of the field sampling and analytical data in fish study databases for statistical input files and review of statistical data in statistical output files
4. Other QA/QC activities specified by the EPA WACOR as related to the performance objectives of the work assignment

Under ***Activity 1***, the Contractor shall be responsible for supporting the development, review, and distribution of Quality Assurance Project Plans (QAPPs). During this WA performance period, EPA anticipates requiring support for the following QAPP activities:

- **Development of a new QAPP for fish sample collection and tissue sample preparation for the Fish Plug Evaluation Study.** In developing this new QAPP, the Contractor shall adhere to the current EPA requirements for preparing a project-specific QAPP. The Contractor shall be responsible for preparing a series of draft QAPPs and the final QAPP that provide the required project and technical information for fish sample collection and tissue sample preparation. At a minimum, this series will include:
  - A first draft QAPP for EPA WACOR review,
  - A second draft QAPP based on EPA WACOR comments for QAPP approver review,
  - A draft final QAPP based on comments from QAPP approvers for their final review and signatures, *and*
  - A final signed QAPP for distribution to individuals on the QAPP distribution list.

- **Preparation of 2018-19 NRSA fish sampling and other related human health fish tissue study information for the 2018-19 NRSA field sampling QAPP that will be developed by EPA's Office of Wetlands, Oceans, and Watersheds.** The Contractor shall update existing fish sampling information from the 2013-14 NRSA field sampling QAPP to prepare the human health fish sampling information for the 2018-19 NRSA field sampling QAPP. At a minimum, the Contractor shall prepare the following:

- an initial draft of the human health fish sampling information for EPA WACOR review,
- a draft final of the human health fish sampling information based on EPA WACOR comments for a second EPA WACOR review, *and*
- final human health fish sampling information based on any additional EPA WACOR comments for final EPA WACOR review and approval.

- **Development of a new QAPP for 2018-19 NRSA human health fish tissue sample preparation, as applicable.** In developing this new QAPP, the Contractor shall adhere to the current EPA requirements for preparing a project-specific QAPP. The Contractor shall be responsible for preparing a series of draft QAPPs and the final QAPP that provide the required project and technical information for fish tissue sample preparation. At a minimum, this series will include:
  - A first draft QAPP for EPA WACOR review,
  - A second draft QAPP based on EPA WACOR comments for QAPP approver review,
  - A draft final QAPP based on comments from QAPP approvers for their final review and signatures, *and*
  - A final signed QAPP for distribution to individuals on the QAPP distribution list.

- **Review of the Fish Plug Evaluation Study analytical QAPP for analysis of plug and fillet tissue samples for mercury and selenium.** The Contractor shall review a draft copy of the analytical QAPP and provide comments to the EPA WACOR based on this review. During review of the content and format of this analytical QAPP, the Contractor shall apply the latest EPA guidance for preparing QAPPs to develop QAPP comments. The Contractor shall verify incorporation of their comments in the revised QAPP prior to reviewing and signing the final QAPP.

- **Review of a QAPP for analysis of 2015 GLHHFFTS fillet tissue samples for contaminants of emerging concern (CECs), as applicable.** The Contractor shall review a draft copy of this new analytical QAPP and provide comments to the EPA WACOR based on this review. During review of the content and format of this analytical QAPP, the Contractor shall apply the latest EPA guidance for preparing QAPPs to develop comments. The Contractor shall verify incorporation of their comments in the revised QAPP prior to reviewing and signing the final QAPP.

Under ***Activity 2***, the Contractor shall assure the quality of fish sample collection records and fish tissue sample preparation records for completeness and accuracy by completing QC reviews for the following records, as applicable, using QA/QC procedures applied for this activity under WA 2-01:

- Fish Plug Evaluation Study fish sample collection records
- Fish Plug Evaluation Study fish tissue sample preparation weekly reports

The Contractor shall complete QA/QC documentation for the Fish Plug Evaluation Study field data related to human health whole fish and plug sample collection. Prior to documenting the field data quality reviews for the Fish Plug Evaluation Study, the Contractor shall modify existing data quality review forms to add fish plug samples to the forms. The content and format for the whole fish sample portion of the data quality review forms shall remain consistent with the corresponding forms for previous fish tissue studies (e.g., the 2013-14 NRSA or the 2015 GLHHFFTS). In addition to summarizing results of the field data reviews, these forms shall include a record of the reconciliation of any discrepancies in the field records with the appropriate field personnel. The Contractor shall also identify any outstanding issues concerning documentation of Fish Plug Evaluation Study field data related to whole fish sample collection, obtain information to resolve these issues from sources such as field personnel, and provide this information to the EPA WACOR for issue resolution.

The Contractor shall complete QC review of Fish Plug Evaluation Study fish tissue sample preparation weekly reports, identify any discrepancies in the fish tissue sample preparation records, and report these discrepancies to the EPA WACOR. The Contractor shall also be responsible for resolving the discrepancies in the fish tissue sample preparation weekly reports and reporting resolution of these discrepancies to the EPA WACOR. In conducting reviews of the fish tissue sample preparation weekly reports, the Contractor shall follow the same procedures used to review these weekly reports under WA 2-01. The Contractor shall ensure that staff that are independent of the fish tissue sample preparation operations conduct reviews of the fish tissue sample preparation weekly reports.

Under ***Activity 3***, the Contractor shall perform the following activities:

- Verify accurate entry of field sampling data (i.e., data related to human health fish sample collection) into OST fish study databases or other related EPA databases (e.g., National Aquatic Resource Survey Information Management or NARS IM databases developed and maintained by the EPA's Office of Research and Development facility in Corvallis, OR) as requested by the EPA WACOR. The Contractor will not be responsible for database development. The databases are being developed under other EPA contracts that provide support for OST fish study database development or for compilation of NARS data (including the human health fish tissue data) in a centralized tracking system.

- Complete QC reviews of the fish study data files prepared as input files for statistical analysis of fish tissue concentration data or as public release data files to ensure that information for valid fish samples is complete and accurate and that no invalid fish sample results are included in these files. The Contractor shall document results of these QC reviews and submit this documentation to the EPA WACOR. During this WA performance period, this activity will apply to the remaining 2015 GLHHFFTS data (dioxin/furan and fatty acid data) and may apply to Fish Plug Evaluation Study data (mercury and/or selenium data, depending on analytical lab schedules).

- Conduct QC reviews of fish study statistical output files for completeness and accuracy. The Contractor shall report results of these reviews to the EPA WACOR. Review of statistical analysis output data files will focus on the 2015 GLHHFFTS during this WA performance period.

Under ***Activity 4***, the Contractor shall be responsible for providing support for other QA/QC activities specified by the EPA WACOR through written technical direction. This may include activities such as providing support for developing or reviewing QA/QC reports on work performed for any of the OST fish contamination studies and preparing documentation for Agency QA audits. During this WA performance period, EPA anticipates requiring Contractor support for review of analytical QA reports for the 2010 Great Lakes Human Health Fish Tissue Study, the 2013-14 NRSA Fish Fillet Tissue Study, and the 2015 GLHHFFTS and for development of a comment summary based on each review. EPA also anticipates requiring Contractor support to prepare fish study documentation for its annual OW QA report.

Task 3: Support for Training, Meetings, Conferences, and Workshops

The Contractor shall provide support for the following activities related to training, meetings, conferences, and workshops:

1. Development of presentations, briefings, training materials, and other program materials related to EPA fish studies for a variety of audiences
2. Logistical support for planning and participating in training, meetings, conferences, and workshops
3. Attendance at training events, meetings, conferences, and workshops to serve in a range of roles
4. Follow-up activities for training, meetings, conferences, and workshops

The Contractor shall provide support for a variety of meetings, conferences, and training workshops related to EPA's fish contamination studies. EPA anticipates Contractor attendance at quarterly national fish study team coordination meetings held at EPA Headquarters (HQ) and at national or regional meetings and conferences to present fish study information (e.g., the 2017 SETAC meeting and the 2018 National Water Quality Monitoring Conference). During the WA performance period, EPA will require support for training material development and for instruction of field sampling teams on the protocols for collection, handling, and shipping of 2018-19 NRSA human health fish tissue samples at a series of up to eleven training workshops. In addition, EPA will require routine support for development of presentation and briefing materials for a variety of audiences. Specific information for each activity is described below.

Under ***Activity 1***, the Contractor shall be responsible for developing presentations, briefings, training materials, and other program materials related to EPA fish contamination studies for a variety of audiences. These materials may consist of slides, project summaries, handouts, and other information about or related to the fish studies. The content of these materials may relate to any aspect of the fish studies, including study design, implementation of

the study, study results, and storage and retrieval of fish tissue study data. As directed by the EPA WACOR, the Contractor shall develop fish study materials appropriate for a variety of audiences, including EPA management, EPA Regions, other EPA program offices and Federal agencies, States, Tribes, and environmental, professional, or industry organizations. At a minimum, EPA anticipates the need to develop fish study materials during this WA performance period for the following types of events:

- EPA quarterly meetings: The Contractor shall provide support for developing a variety of meeting materials, such as meeting agendas, project status summaries, and meeting notes.

- EPA management briefings: EPA anticipates scheduling three management briefings on fish contamination studies during the WA performance period. The Contractor shall produce slides for fish contamination briefings in PowerPoint and electronic deliverables developed in WORD and PDF formats for these briefings.

- Presentations for other EPA programs, Federal agencies, and environmental, professional, or industry organizations: EPA anticipates a requirement to deliver about six presentations during the WA performance period. EPA estimates that about half of these presentations will be posters and the others will be PowerPoint presentations.

- Fish sampling training materials for the 2018-19 NRSA training workshops: The Contractor shall provide support for developing 2018-19 NRSA fish sampling training materials. The Contractor shall update existing fish sampling training materials developed for the 2013-14 NRSA to prepare the 2018-19 NRSA fish sampling training materials. These materials include fish tissue study training slides and supporting materials, such as frequently asked questions (FAQs) related to fish tissue sample collection. EPA anticipates the need for an average of 25 sets of training material handouts for up to 11 training workshops during the WA period of performance.

For ***Activity 2***, the Contractor shall provide logistical support for planning and participating in training, meetings, workshops, and scientific conferences as specified by the EPA WACOR through written technical direction. EPA anticipates that this activity will apply to the following events during the WA period of performance: quarterly meetings at EPA Headquarters in Washington, DC; the series of eleven 2018-19 NRSA training workshops; and national or regional conferences and meetings, such as the 2017 SETAC meeting in Minneapolis, MN during November 2017; the 2018 National Water Quality Monitoring Conference during Spring 2018 (location to be determined (TBD), but for cost estimating purposes, assume a 4-day meeting in Seattle, WA); and a regional Great Lakes meeting (location and time TBD, but for cost estimating purposes, assume a 3-day meeting in Chicago, IL). This support shall consist of a broad range of activities, such as the following:

- Developing agendas for meetings, workshops, and training events.

- Planning and developing new materials related to the fish studies and/or customizing existing materials for use during training events, meetings, conferences, and workshops.

- Contacting training, meeting, and workshop participants to obtain information necessary for planning and participating in these events.

- Compiling and organizing fish study information for distribution at training events, meetings, conferences, and workshops.

- Shipping or transporting fish study-related materials to training events, meetings, conferences, and workshops (e.g., posters, handouts, fact sheets, supplies for training demonstrations, etc.). If applicable, materials for quarterly fish study team meetings will be shipped to EPA HQ in Washington, DC; for estimating costs of shipping materials for scientific conferences and meetings, assume shipments to the three locations identified in the paragraph above.

Under ***Activity 3,*** the Contractor shall provide staff with appropriate skills and experience to attend meetings, workshops, and scientific conferences relevant to EPA's fish studies and serve in a range of roles at these events as specified by the EPA WACOR. These roles may include trainers, presenters, facilitators, and note-takers.

At the written technical direction of the EPA WACOR, the Contractor shall attend national or regional meetings and scientific conferences related to fish contamination assessment and fish study team meetings at EPA Headquarters or other designated locations (alternative locations in the mid-Atlantic region that would require local travel [e.g., Maryland or Northern Virginia]). The Contractor shall also participate in conference calls to coordinate with fish study team members and/or participants and EPA staff for discussion and resolution of program issues. EPA anticipates Contractor attendance at quarterly fish study team meetings at EPA HQ and the following scientific conferences and meetings during the WA performance period to serve as a presenter: the 2017 SETAC meeting in Minneapolis, MN during November 12-16, 2017; the 2018 National Water Quality Monitoring Conference during Spring 2018 (location and time to be determined (TBD), but for cost estimating purposes, assume a 4-day meeting in Seattle, WA); and a regional Great Lakes meeting (location and time TBD, but for cost estimating purposes, assume a 3-day meeting in Chicago, IL during the second half of the WA performance period). In estimating costs for the scientific conferences and meetings, the Contractor shall assume the attendance of a Senior fisheries biologist with long-term EPA fish tissue study support experience for the duration of the SETAC meeting and the regional meeting. For the 2018 National Water Quality Monitoring Conference, the Contractor shall assume attendance of up to two staff, including a Senior Fisheries Biologist with long-term EPA fish tissue study support and an additional fish study support team member for the duration of this EPA-sponsored conference.

The Contractor shall provide a Senior Fisheries Biologist with experience as a 2013-14 NRSA fish tissue indicator trainer, a Senior Fisheries Biologist with relevant qualifications for the 2018-19 NRSA fish tissue study training, or other staff with previous relevant NRSA training or field leader experience to serve as fish tissue indicator trainers for the series of 2018-19 NRSA training workshops being organized and conducted by EPA's Office of Wetlands, Oceans, and Watersheds. The 2018 series of NRSA training workshops will consist of a Train-the-Trainer workshop that will likely be scheduled in March 2018 and up to ten training workshops held in the EPA Regions from March through June 2018. Based on training schedules for the 2013-14 NRSA, the Contractor shall assume that each workshop is generally scheduled on Tuesday, Wednesday, and Thursday during the designated week with travel to and from each workshop scheduled on Monday and Friday. The specific dates and locations for each of the 2018-19 NRSA training workshops have not yet been scheduled, so use the following information for estimating costs:

- Assume that the 2018 NRSA Train-the-Trainer workshop will be held in the vicinity of Tulsa, OK during March 2018.
- Assume that the Region 1 NRSA training workshop will be held in North Chelmsford, MA during June 2018.
- Assume that the Region 2 NRSA training workshop will be held in the vicinity of Trenton, NJ during April 2018.
- Assume that the Region 3 NRSA training workshop will be held in Wheeling, WV during May 2018.
- Assume that the Region 4 NRSA training workshop will be held in the vicinity of Atlanta, GA during April 2018.
- Assume that the Region 5 NRSA training workshop will be held in the vicinity of Chicago, IL during May 2018.
- Assume that the Region 6 NRSA training workshop will be held in the vicinity of Dallas, TX during April 2018.
- Assume that the Region 7 NRSA training workshop will be held in the vicinity of Kansas City, MO during May 2018.
- Assume that the Region 8 NRSA training workshop will be held in the vicinity of Denver, CO during May 2018.
- Assume that the Region 9 NRSA training workshop will be held in the vicinity of Sacramento, CA during April 2018.
- Assume that the Region 10 NRSA training workshop will be held in the vicinity of Portland, OR during June 2018.

For ***Activity 4***, the Contractor shall provide support for follow-up activities to training, meetings, and workshops. These activities may include the following:

- Developing training/meeting/workshop evaluations and summarizing suggestions to improve future training/meetings/workshops.

- Preparing and distributing meeting summaries electronically to attendees.

- Documenting issues for resolution based on discussions during training, meetings, conferences, or workshops.

- Revising and distributing study materials based on resolution of issues identified during training, meetings, conferences, or workshops.

- Responding to follow-up process questions from training, meeting, conference, or workshop participants.

- Contacting training, meeting, conference, or workshop participants to obtain additional information for the studies.

Task 4: Support for Planning, Organizing, Implementing, and Reporting Field Sampling Activities

EPA requires support for planning, organizing, implementing, and reporting field sampling activities for the Fish Plug Evaluation Study and for the 2018-19 NRSA human health fish tissue study. Preliminary elements of the fish sampling designs for each study are summarized below.

Fish Plug Evaluation Study

1. Fish sampling will be conducted in two waterbody types, the Great Lakes and U.S. rivers. Lake Michigan and Lake Erie will be targeted for Great Lakes fish collection, and the Potomac River, Susquehanna River, and Delaware River will be targeted for river fish collection.
2. Individual whole fish samples will be collected from each waterbody type to provide plug and fillet tissue samples for mercury and selenium analyses.
3. To provide tissue samples for mercury analysis, 10 specimens of three species each will be collected from the designated Great Lakes and from the designated rivers. Target species for the Great Lakes will be lake trout, walleye, and Chinook or coho salmon. Target species for the rivers will be largemouth bass, smallmouth bass, and channel catfish. This fish sampling effort will yield 60 individual whole fish samples to be prepared for mercury analysis.
4. Five replicates each of three types of fish tissue samples will be prepared from each fish for mercury analysis: field-extracted plug tissue samples, lab-extracted plug tissue samples, and lab-prepared fillet tissue samples, yielding 900 fish tissue samples for mercury analysis (60 fish x 3 tissue samples types per fish x 5 replicates per tissue sample type = 900 fish tissue samples).
5. To provide tissue samples for selenium analysis, 5 specimens of three species each will be collected from the designated Great Lakes and from the designated rivers. Target species for the Great Lakes and rivers will be the same as for mercury (i.e., lake trout, walleye, and Chinook or coho salmon for the Great Lakes and largemouth bass, smallmouth bass, and channel catfish for the rivers). This fish sampling effort will yield 30 individual whole fish samples to be prepared for selenium analysis.

6. Four replicate each of two types of fish tissue samples will be prepared from each fish for selenium analysis: field-extracted plug tissue samples and lab-prepared fillet tissue samples, yielding 240 fish tissue samples for selenium analysis (30 fish x 2 tissue sample types per fish x 4 replicates per tissue sample type = 240 fish tissue samples).

2018-19 NRSA Human Health Fish Tissue Study

1. Fish sampling will be conducted in U.S. rivers (5th order or higher based on Strahler stream order) in the lower 48 states.
2. A total of 480 river sites will be identified for potential fish sample collection with the goal of obtaining a minimum of 384 fish samples for toxic chemical analyses.
3. Fish composite samples consisting of 5 adult fish of the same species (species commonly caught and consumed by recreational fishers) and similar lengths (the length of the smallest specimen is no less than 75% of the length of the largest specimen in the composite sample).
4. Each fish composite sample will be processed in the lab to prepare multiple aliquots of fillet tissue for target chemical analyses.

To obtain the target number and type of fish samples for each study, the Contractor shall provide support for the following activities related to field sampling:

1. Sampling site evaluations
2. Logistical and technical support for planning and implementing collection, handling, and shipment of fish samples
3. Development and distribution of field sampling reports

Under ***Activity 1***, the Contractor shall provide support for 2018-19 NRSA site evaluations for the river locations (about 480 locations) designated for whole fish sampling (and subsequent analysis of fillet tissue samples). These human health fish sampling sites are a subset of the total number of river sites selected for the 2018-19 NRSA. At a minimum, the goal is to select 192 river sites that were sampled during previous National Rivers and Streams Assessments (i.e., the 2008-09 NRSA and the 2013-14 NRSA) and to select 192 new 2018-19 NRSA river sites (collectively this represents about 4 sites per state for the lower 48 states). States, EPA Regions, or other study participants will initially conduct desktop or field reconnaissance for each of these sites to determine whether they meet the study criteria for a target sampling location and whether adequate access is available for sample collection. The Contractor shall obtain and summarize site evaluation information related to site classifications (e.g., non-target or inaccessible locations), site replacement locations, site access, and target species availability at whole fish sampling sites, by performing in the following activities:

- Contacting EPA Regions, states, and other sources identified by the EPA WACOR to obtain site evaluation information, including site classifications and site replacements affecting whole fish sampling locations, availability of target fish species, and locations of access points for whole fish collection.

- Summarizing, updating, and distributing whole fish sampling site information.

Additionally for ***Activity 1***, the Contractor shall identify Great Lakes and river sampling sites for the Fish Plug Evaluation Study based on publicly available access to the sites, availability of target species, and other important considerations for fish sampling site selection.

For ***Activity 2***, the Contractor shall provide logistical and technical support for planning and implementing collection, handling, and shipment of whole fish samples (for fillet analysis) from the designated 2018-19 NRSA sites. This support shall consist of the following activities:

- Developing and maintaining field sampling contact lists related to the human health whole fish sampling sites.

- Updating human health fish sampling protocols for incorporation into field sampling documents, such as the 2018-19 NRSA Field Operations Manual and Field Sampling QAPP (that will be produced by EPA's Office of Wetlands, Oceans, and Watersheds).

- Reviewing and preparing comments on 2018-19 NRSA documents and forms related to fish sampling activities for the human health fish tissue study.

- Ordering expendable field supplies and maintaining field sampling equipment (e.g., coolers) to support field operations for collecting whole fish samples for fillet analysis from the designated human health river sites.

- Assembling and shipping human health whole fish sampling kits and coolers to the 2018-19 NRSA central field sampling supply distribution center in Traverse City, MI.

- Obtaining information on field crews and their field sampling schedules and providing field sampling updates to the EPA WACOR for coordinating support for field sampling operations and for shipment of fish samples to the Tetra Tech laboratory facility at Owings Mills, MD.

- Tracking shipment of whole fish sampling supplies to Traverse City, MI and of coolers containing whole fish samples from field sampling locations to the Tetra Tech fish sample preparation laboratory in Owings Mills, MD.

- Communicating field sampling issues to the EPA WACOR for resolution and documenting the issues and EPA decisions for resolution of these issues.

- Tracking and documenting all 2018-19 NRSA human health whole fish sampling activities during the beginning months of the 2018 field season (May and June 2018) and preparing weekly progress reports summarizing these fish sampling activities for the EPA WACOR. The Contractor shall develop and submit weekly progress reports with content and format comparable to weekly fish sampling

progress reports prepared for the 2014 NRSA field season under a previous WA (WA 0-01 under contract EP-C-14-016).

- Maintaining files of the fish sampling records for the 2018-19 NRSA human health fish tissue study sampling sites.

Additionally for ***Activity 2***, the Contractor shall provide logistical support for planning and implementing collection, handling, and shipment of whole fish and fish plug samples from the Great Lakes and river sites selected for the Fish Plug Evaluation Study. This support shall consist of the following activities:

- Designing and producing fish sampling forms and labels for the Fish Plug Evaluation Study using forms and labels from other fish studies as a template for their development. The EPA WACOR will review and approve the content and format of the new forms and labels prior to production of the forms and labels for fish sampling operations.

- Developing whole fish and fish plug sampling, handling, and shipping procedures for the Fish Plug Evaluation Study for EPA WACOR review and approval.

- Planning field sampling logistics for fish sampling in the designated Great Lakes and mid-Atlantic rivers and submitting fish sampling plans to the EPA WACOR. In preparing the fish sampling plans for the Fish Plug Evaluation Study, the Contractor shall assume up to three trips to the Great Lakes and up to three trips to the mid-Atlantic rivers for fish sample collection. The Contractor shall specify fish sampling staff, locations, and dates in each plan.

- Ordering expendable field supplies to support field operations for collecting whole fish and fish plug samples from the selected Great Lakes and river sites.

- Assembling and transporting whole fish and fish plug sampling kits and coolers to the designated Great Lakes and river sites for conducting fish sampling operations.

- Obtaining fish sample collection permits, as required, from applicable Great Lakes and mid-Atlantic states prior to conducting fish sampling operations.

- Collecting the target number and species of whole fish samples identified in the Fish Plug Evaluation Study sampling design (refer to the sampling design summary at the beginning of Task 4), completing fish sampling forms for each collection site, and reporting results of each fish sampling trip to the EPA WACOR.

- Extracting fish plug samples from each whole fish sample, labeling each plug sample, shipping the fish plug samples to the Tetra Tech fish sample preparation lab in Owings Mills, MD for interim storage or directly to an analytical lab identified by the EPA WACOR, tracking the progress of each shipment, and reporting final delivery and sample condition information to the EPA WACOR.

- Preparing whole fish samples for transport or shipment to the Tetra Tech fish sample preparation lab in Owings Mills, MD, including wrapping and labeling each sample and packing the fish samples on dry ice in coolers for shipment or storing them in a portable freezer for transport.

- Tracking shipment of whole fish samples, as applicable, to the Tetra Tech fish sample preparation lab in Owings Mills, MD and reporting final delivery and sample condition information to the EPA WACOR.

- Communicating fish sampling issues to the EPA WACOR for resolution and documenting the issues and EPA decisions for resolution of these issues.

- Compiling the collective fish sampling results into an Excel spreadsheet to prepare the Fish Plug Evaluation Study Master Spreadsheet and submitting the Master Spreadsheet for EPA WACOR review and approval. The Contractor shall include the same types of information in this Master Spreadsheet that occur in the Master Spreadsheets developed for other EPA fish tissue studies.

- Maintaining files of fish sampling records for the Fish Plug Evaluation sampling sites.

Under ***Activity 3***, the Contractor shall provide ongoing support for preparing and distributing fish sampling reports for fish contamination studies, including fish sampling information summaries and cumulative fish sampling activity reports. During the WA performance period, fish sampling reporting will focus on completing the 2010 GLHHFTS and 2013-14 NRSA cumulative fish sampling activity reports drafted during prior work assignments and on developing a cumulative fish sampling activity report for the 2015 GLHHFFTS. The Contractor shall incorporate EPA WACOR comments on the draft 2010 GLHHFTS and 2013-14 NRSA cumulative fish sampling activity reports to produce the final 2010 GLHHFTS and 2013-14 NRSA cumulative fish sampling activity reports, respectively. The EPA WACOR will review and approve each of these fish sampling final reports. In addition, the Contractor shall prepare a cumulative fish sampling activity report for the 2015 GLHHFFTS whole fish sample collection results using the final cumulative fish sampling activity reports from previous fish studies as templates for developing the content and format for this report. The Contractor shall incorporate EPA WACOR comments on the draft 2015 GLHHFFTS cumulative fish sampling activity report to produce the final 2015 GLHHFFTS cumulative fish sampling activity report. The EPA WACOR will review and approve this final cumulative fish sampling activity report.

Task 5: Support for Laboratory Preparation of Fish Tissue Samples

The Contractor shall provide support for laboratory preparation of Fish Plug Evaluation Study fish tissue samples for mercury and selenium analysis during the WA period of performance. The Fish Plug Evaluation Study sampling design specifies that 90 individual fish samples will be collected for the study, including 60 fish for mercury analysis and 30 fish for selenium analysis. The Contractor shall prepare the following fish tissue samples from these 90 fish:

- 300 lab-extracted plug samples from the 60 fish designated for mercury analysis (i.e., 5 plug samples per fish from the 60 fish designated for mercury analysis). The number of grams of plug tissue required for each sample will be specified in the Fish Plug Evaluation Study fish sample collection and preparation QAPP.

- 300 fillet tissue aliquots from the 60 fish designated for mercury analysis (i.e., five aliquots each from the 60 homogenized fillet tissue samples prepared from the 60 individual fish) plus additional fillet tissue aliquots to analyze for lipids and to store as archived samples. The number of grams required for each mercury fillet tissue aliquot and the number of grams and aliquots required for lipid analysis and archived samples will be specified in the Fish Plug Evaluation Study fish sample collection and preparation QAPP.

- 120 fillet tissue aliquots from the 30 fish designated for selenium analysis (i.e., four aliquots each from the 30 homogenized fillet tissue samples prepared from the 30 individual fish) plus additional fillet tissue aliquots to analyze for lipids and to store as archived samples. The number of grams required for each selenium fillet tissue aliquot and the number of grams and aliquots required for lipid analysis and archived samples will be specified in the Fish Plug Evaluation Study fish sample collection and preparation QAPP.

Contractor support for the Fish Plug Evaluation Study fish tissue sample preparation shall consist of, but not be limited to, the following activities:

- developing a project-specific fish tissue sample preparation SOP to be appended to the Fish Plug Evaluation Study fish sample collection and preparation QAPP

- ordering supplies necessary to implement the fish tissue sample preparation SOP

- providing the laboratory space and fish tissue sample preparation equipment that will meet the requirements specified in the fish tissue sample preparation SOP

- ensuring that staff assigned to do the fish tissue sample preparation are adequately trained in filleting techniques and the entire series of fish tissue sample preparation procedures

- assigning a Senior Fisheries Biologist with extensive filleting and fish tissue sample preparation experience to provide training assistance and performance monitoring for fish tissue sample preparation staff

- arranging for analysis of fish tissue sample preparation QC samples (i.e., triplicate lipid samples, mercury rinsate and solvent blank samples, and selenium rinsate and solvent blank samples), analyzing all fillet samples for lipids, and reporting results of these analyses to the EPA WACOR

- preparing and submitting fish tissue sample preparation weekly progress reports to the EPA WACOR

- providing secure freezer space for interim storage of whole fish and fish tissue samples

- packing QC and fish tissue samples in coolers and shipping QC samples to laboratories identified by the Contractor and fish tissue samples to laboratories specified by the EPA WACOR

- tracking shipment of QC and fish tissue samples and reporting delivery information (i.e., delivery data and time and sample condition at time of delivery) to the EPA WACOR

The Contractor shall develop a project-specific fish tissue sample preparation SOP for the Fish Plug Evaluation Study that includes laboratory extraction of fish plugs from the 60 fish designated for mercury analysis, filleting and homogenizing the fillet tissue from the 90 individual fish collected for the Fish Plug Evaluation Study (60 for mercury analysis and 30 for selenium analysis), preparing fillet tissue aliquots, conducting QC for tissue homogenization (i.e., triplicate lipid analyses) and for potential chemical contamination of fillet tissue during processing (i.e., analysis of rinsate and solvent blank samples for each of the three mercury batches of fillet tissue samples and for each of the two selenium batches of fillet tissue samples, providing interim storage for the whole fish and for the fish tissue samples, and shipping the fish tissue samples to laboratories specified by the EPA WACOR. The EPA WACOR will provide the Contractor with a WORD copy of the 2013-14 NRSA fish tissue sample preparation SOP to use as a template for development of this new SOP.

The Contractor shall order laboratory supplies that will be needed for preparing and shipping fish tissue samples based on the requirements specified in the new fish sample preparation SOP. These supplies include, but are not limited to, biopsy punches for extracting plug samples, utensils for scaling and filleting fish, cutting boards, containers for holding the bulk homogenized fish tissue, solvents for cleaning fish sample preparation equipment, vials for lab-extracted plug samples, jars for fillet tissue sample aliquots, fish plug shipping kits, and coolers for shipping fillet tissue sample jars. The Contractor shall obtain these supplies sufficiently in advance of the schedules for initiating fish sample preparation and for shipping fish tissue

samples to designated laboratories to avoid any unnecessary delays in these fish sample preparation operations.

The Contractor shall provide adequate laboratory space and equipment necessary to complete all aspects of the fish sample preparation. The SOP shall specify these requirements based on requirements that applied to fish sample preparation activities for previous fish tissue studies. EPA anticipates that the laboratory space and equipment requirements shall be similar to those that applied for the 2015 GLHHFFTS fish sample preparations operations with any necessary adjustments to add extraction of fish plug samples in the laboratory.

The Contractor shall ensure that staff assigned to conduct fish sample preparation activities shall be knowledgeable about and adequately trained on the entire series of fish tissue sample preparation procedures. These procedures include, but are not limited to, extraction of fish plugs, scaling and filleting fish, homogenizing fillet tissue, cleaning fish sample preparation equipment, preparing fillet tissue sample aliquots, and recording all the required information for weekly progress reports.

The Contractor shall provide a Senior Fisheries Biologist with extensive filleting experience and fish sample preparation experience for EPA fish tissue studies (e.g., 2013-14 NRSA and 2015 GLHHFFTS fish sample preparation) to assist with staff training in the development of the technical skills necessary to successfully complete all fish sample preparation activities. The Senior Fisheries Biologist shall also be responsible for monitoring the performance of fish tissue sample preparation staff to ensure that they adhere to the all the SOP requirements.

The Contractor shall plan for analysis of fish sample preparation QC samples. The Contractor shall prepare the QC samples for each batch of mercury fillet tissue samples (three batches of 20 samples each from the 60 fish designated for mercury analysis) and for each batch of selenium fillet tissue samples (one batch of 20 samples and one batch of 10 samples from the 30 fish designated for selenium analysis). For each batch of mercury fillet tissue samples, the QC samples include one triplicate set of lipid analyses (9 lipid samples) and a pair of aqueous samples consisting of a mercury rinsate sample and a solvent blank sample (3 pairs of aqueous samples). The QC samples for each batch of selenium fillet tissue samples include one triplicate set of lipid samples (6 lipid samples) and a pair of aqueous samples consisting of a selenium rinsate sample and a solvent blank sample (2 pairs of aqueous samples). In addition, the Contractor shall prepare a single fillet tissue sample for lipid analysis from the 85 fillet samples not analyzed for lipids as part of the QC process (57 single lipid samples from mercury fillet samples and 28 single lipid samples from selenium fillet samples). Based on fish sample preparation operations for the 2015 GLHHFFTS, EPA assumes that the Contractor shall arrange for analysis of triplicate QC lipid samples, single lipid samples, and aqueous QC samples that could involve analysis by multiple laboratories. The EPA WACOR shall approve methods for lipid analysis and metals analyses of QC samples prior to the designated laboratory initiating analysis of the lipid and aqueous QC samples. The Contractor shall coordinate data delivery schedules for these QC samples to avoid delays in the EPA schedule for preparing each batch of fish tissue samples for the Fish Plug Evaluation Study.

During fish sample preparation operations, the Contractor shall prepare and submit a weekly progress report to the EPA WACOR. To develop the weekly progress reports, the Contractor shall use a format consistent with reporting fish sample preparation status for previous fish tissue studies (e.g., 2015 GLHHFFTS) with modifications to report the tissue volumes (in grams) for the additional plug sampling. The Contractor shall submit each weekly progress report to the EPA WACOR on the Tuesday following the week of fish sample preparation activities included in the report.

The Contractor shall provide secure freezer space for interim storage of whole fish and fish tissue samples generated for the Fish Plug Evaluation Study. The Contractor shall ensure that there is sufficient freezer capacity for temporary storage of up to 90 whole fish (of the species identified under Task 4), 600 plug samples, 420 fillet tissue samples, and a TBD number of archived fillet tissue samples (assume about 180 archived fillet samples for estimating freezer space requirements). The Contractor shall store the fish and fish tissue samples in accordance with QAPP requirements (e.g., temperatures less than or equal to - 20 degrees Celsius). In case of a power failure, the Contractor shall have an emergency backup plan to keep all the fish and fish tissue samples frozen at temperatures below - 20 degrees Celsius. The Contractor shall refrigerate the aqueous QC samples until they are ready for shipment.

The Contractor shall be responsible for packing fish tissue samples and aqueous QC samples for shipment to various TBD analytical laboratories. The Contractor shall obtain sufficient quantities of dry ice to preserve fish tissue samples in a cooler for at least 48 hours while in transit to the designated analytical laboratory. The Contractor shall ship aqueous QC samples with sufficient quantities of wet ice to maintain proper temperatures in the cooler for at least 48 hours while in transit to the designated analytical laboratory. For both the fish tissue samples and aqueous QC samples, the Contractor shall ship coolers using an overnight express delivery service and specify priority delivery the next morning. The Contractor shall determine the analytical laboratories for QC sample analyses. The EPA WACOR will provide laboratory information for shipping the fish tissue samples.

The Contractor shall track shipment of QC and fish tissue samples until they reach the designated analytical laboratories. For each shipment, the Contractor shall report the delivery time and date to the EPA WACOR by close of business on the date of delivery. For delivery of QC samples, the Contractor shall also report the sample condition at time of delivery to the EPA WACOR.

Additionally, the Contractor shall provide support for laboratory preparation of fish tissue samples for chemical analysis from the fish composite samples collected for the 2018-19 NRSA. During the WA period of performance, the 2018-19 NRSA fish sample preparation support shall consist of the following activities:

- developing a project-specific fish tissue sample preparation SOP to be appended to the 2018-19 NRSA fish sample preparation QAPP

- assigning 2018-19 fish samples to individual batches and preparing fish sample preparation instructions for each batch of these samples

The Contractor shall develop a project-specific fish tissue sample preparation SOP for the 2018-19 NRSA human health fish tissue study that includes filleting and homogenizing the fillet tissue from approximately 400 fish composite samples planned for the study, preparing fillet tissue aliquots for analysis of the tissue samples for the study target chemicals, conducting QC for tissue homogenization (i.e., one triplicate lipid analysis for each batch of 20 samples and a total of about 20 batches) and for potential chemical contamination of fillet tissue during processing (i.e., analysis of a pair of rinsate and solvent blank samples per 20-sample batch for approximately 20 batches), providing interim storage for the whole fish and for the fish tissue samples, and shipping the fish tissue samples to laboratories specified by the EPA WACOR. The EPA WACOR will provide the Contractor with a WORD copy of the 2015 GLHHFFTS fish tissue sample preparation SOP to use as a template for development of this new SOP.

The Contractor shall prepare draft fish sample preparation instructions for the 2018-19 NRSA human health fish samples collected during the WA period of performance. In preparing the draft instructions, the Contractor shall adhere to the fish composite sample collection criteria (e.g., the same species criterion and the 75% fish length criterion) and use instruction language and formats consistent with fish sample preparation instructions prepared for previous fish tissue studies (e.g., the 2013-14 NRSA human health fish tissue study). The Contractor shall submit draft instructions for EPA WACOR review and comment and prepare final fish sample preparation instructions based on EPA WACOR comments. The EPA WACOR will review and approve the final fish sample preparation instructions prior to initiation of any preparation of fish tissue samples. The Contractor shall incorporate final fish sample preparation instructions into the fish sample collection Master Spreadsheet. The Contractor shall assign 2018-19 NRSA human health fish samples to individual fish sample preparation batches as applicable during the WA period of performance. The Contractor shall use the same approach to assigning fish samples to sample preparation batches that was applied in the 2015 GLHHFFTS (i.e., similar numbers of fish per batch, similar types of fish species per batch, etc.). The EPA WACOR will review and approve assignment of the fish samples to fish sample preparation batches.

Task 6: Support for Compiling, Integrating, Analyzing, Displaying, and Distributing Fish Study Data

EPA requires support for compiling, integrating, analyzing, displaying, and distributing fish contamination study data. Data releases shall include distribution of interim data to study participants, followed by public release of the data. Support under Task 6 includes development of data summaries and displays for both interim and cumulative study results, along with integration of data sets for interim and final reporting. In response to EPA requirements, the Contractor shall provide support for a broad range of data management activities, including, but not limited to, the following:

1. Compilation of interim data for both internal and public release

2. Integration of data sets for cumulative release and for interim and final report production
3. Data analysis
4. Development of tabular and graphic data displays for various uses, including internal and external reports, briefings, oral and poster presentations, and online displays on EPA web sites
5. Distribution of data to a wide variety of audiences, including EPA programs, study participants, academic research programs, environmental organizations, industry associations, and the general public

Under ***Activity 1***, the Contractor shall provide staff with the appropriate skills and experience to organize, compile and review fish contamination study data. Performing tasks under this activity shall require knowledge of both the study data elements and the study database. The Contractor shall be responsible for preparing hard copy and/or electronic copies of interim and cumulative data sets for release to study participants and the public in formats specified by the EPA WACOR. Releases may include a complete inventory of all data (e.g., public release data CDs), as well as data summaries (e.g., subsets of analytical results for fish tissue samples that exceed Agency human health screening values).

Under ***Activity 2***, the Contractor shall be responsible for integrating fish study data sets for cumulative presentations and for interim and final report production. Consistent with Activity 1, this activity shall require knowledge of both the study data elements and the study database. Based on written technical direction from the EPA WACOR, the Contractor shall develop integrated data presentations in hard copy and/or electronic formats for Agency use and for distribution to study participants and the public.

Under ***Activity 3***, the Contractor shall provide support for statistical analysis of fish study data and review of statistical analysis results. The Contractor shall be responsible for deriving statistical parameters specified by the EPA WACOR (e.g., standard statistical parameters, such as mean and median values, percentiles, confidence intervals, standard error, etc.). During this WA period of performance, EPA will require support for statistical analysis of the Fish Plug Evaluation Study mercury and selenium fish tissue concentration data to compare the analytical results from the corresponding fish fillet tissue samples and fish muscle tissue plug samples derived from the same whole fish samples. This support shall consist of developing and implementing a statistical analysis plan for analyzing the 900 mercury fish tissue sample results and the 240 selenium fish tissue sample results. The Contractor shall prepare a draft statistical analysis plan and submit it to the EPA WACOR for review. The Contractor shall incorporate EPA WACOR comments on the draft statistical analysis plan to produce the final statistical analysis plan. The EPA WACOR will review and approve the final statistical analysis plan before the Contractor initiates implementation of the plan. Based on written technical direction from the EPA WACOR, the Contractor shall also provide support for independent review of statistical analysis results generated by other sources.

Under ***Activity 4***, the Contractor shall develop tabular and graphic summaries of study results for a variety of uses as requested by the EPA WACOR. These data displays may be prepared for distribution with data releases or for use in briefings, workshops, symposia, fact

sheets, posters and study reports. The Contractor shall provide staff with the appropriate skills to prepare tabular and graphic data displays, and the experience necessary to apply the study data appropriately in the context of the study design and objectives.

To perform data delivery tasks under ***Activity 5***, the Contractor shall develop and maintain a study participant contact list for each fish contamination study and a distribution list for public release of National Lake Fish Tissue Study data CDs. The Contractor shall produce multiple copies of data deliverables on hard copy and/or electronic media based on EPA WACOR written technical direction and subject to limitations specified in the contract.

Task 7: Support for Development of Public Outreach Materials

The Contractor shall provide support for the development and review of public outreach materials for fish contamination studies and related topics. This shall include development of products such as fact sheets, brochures, posters, and materials for display on EPA web sites. The Contractor shall draft product text, develop or obtain appropriate graphics, design product layout, and meet all EPA specifications in the development of products for public distribution, including EPA requirements for displaying products online that are 508 compliant. The EPA WACOR will provide the Contractor with information on EPA specifications for producing public outreach materials. The Contractor shall prepare an initial draft product for EPA WACOR review, incorporate EPA WACOR comments to prepare a draft final product subject to both EPA WACOR review and review by the relevant EPA offices (e.g., Office of Science and Technology, Office of Water, Office of Public Affairs), and incorporate EPA WACOR and EPA review office comments to produce a final camera-ready and/or web-ready product. The Contractor shall also provide support for reviewing public outreach materials for fish contamination studies and related topics developed by other sources (e.g., other EPA contractors or EPA offices, such as OWOW, GLNPO, or ORD). EPA anticipates that specific activities under this task during the WA performance period shall include, but are not limited to, the following:

- Update an existing poster on the 2015 Great Lakes Human Health Fish Fillet Tissue Study (GLHHFFTS) results, as required, for presentation at scientific conferences and/or meetings (e.g., the 2017 SETAC meeting).

- Prepare a new poster on the 2015 GLHHFFTS results (e.g., PFCs, dioxins/furans, or fatty acids) for presentation at scientific conferences and/or meetings (e.g., the 2018 National Water Quality Monitoring Conference and/or a regional Great Lakes meeting).

- Review and/or develop new web materials for the 2013-14 NRSA Fish Fillet Tissue Study and the 2015 GLHHFFTS and updated web materials for other fish tissue studies (e.g., the 2008-09 NRSA Fish Tissue Study and the 2010 GLHHFTS). Contractor support for web materials shall include:

- preparing or updating project documents for online release (e.g., the National Pilot Study of Pharmaceuticals and Personal Care Products (PPCPs) in Fish Tissue Final Report)
- developing or revising fact sheets (e.g., fact sheets on Contaminants of Emerging Concern (CECs) in fish)
- creating or updating web text and graphics to describe project activities and/or results
- producing materials in formats consistent with Agency requirements for posting them on the Internet.

Task 8: Support for Development of Final Study Reports

EPA requires support for development and review of final reports for fish contamination studies. During the WA performance period, EPA anticipates requiring support for revision and/or completion of fish study final reports (i.e., technical journal articles) that were initiated under previous work assignments, development of new technical journal articles reporting fish study data, and preparation of human health fish tissue study results summaries for National Aquatic Resource Survey (i.e., NRSA and NCCA) final reports, including the following:

- **Revision of the existing 2010 GLHHFTS technical journal article reporting mercury, PCB, and PBDE results to incorporate 2015 GLHHFFTS results for mercury and PCBs into the article.** In its current form, the existing Great Lakes journal article has been peer reviewed and fully reviewed and approved by EPA management for publication. All revised article drafts and related deliverables (e.g., comment response spreadsheets) listed above will be subject to EPA WACOR review and approval. The final revised article and galley proof edits will also be subject to EPA WACOR review and approval before submission of these deliverables to the technical journal. Contractor support for revising this journal article shall consist of the following:
  - preparing a first draft article revision for EPA WACOR review,
  - revising the first draft article revision based on EPA WACOR comments to produce a second draft article revision for co-author review,
  - revising the second draft article revision based on co-author comments to produce a third draft article revision for internal peer review, if required (otherwise, the third draft article revision would be for EPA management review and all the subsequent steps would be adjusted accordingly),
  - revising the third draft article revision based on comments from internal peer reviewers to produce a fourth draft article revision for EPA management review,
  - compiling internal peer review comments and preparing a spreadsheet that includes the full set of comments and responses to each comment, if internal peer review is required,

- revising the fourth draft article revision based on EPA management review comments to produce a fifth draft article revision for submission to a technical journal,
- providing information to be used as a basis for technical journal selection,
- formatting the revised article to meet the selected technical journal requirements,
- completing the logistics for the revised journal article submission,
- revising the fifth draft article revision based on comments from external peer reviewers to produce the draft final revised article for final EPA management clearance,
- revising the draft final revised article based on final EPA management comments (if applicable) to produce the final revised journal article,
- resubmitting the final revised article to the journal editor for publication,
- compiling comments from external peer reviewers and the journal editor and preparing a spreadsheet that includes the full set of comments and responses to each comment for submission with the final revised technical journal article, *and*
- reviewing galley proofs of the final revised article to identify final article edits, then compiling and submitting the final edits to the journal editor.

All revised Great Lakes journal article drafts and related deliverables (e.g., comment response spreadsheets) listed above will be subject to EPA WACOR review and approval. The final revised Great Lakes journal article and the galley proof edits will also be subject to EPA WACOR review and approval before submission of these deliverables to the technical journal editor.

- **Completion of the existing 2013-14 NRSA technical journal article reporting mercury, PCB, and PFC results.** The existing journal article is in the initial draft stage of development. Contractor support for completing this journal article shall consist of the following:
  - preparing a first draft article for EPA WACOR review,
  - revising the first draft article based on EPA WACOR comments to produce a second draft article for co-author review,
  - revising the second draft article based on co-author comments to produce a third draft article for internal peer review,
  - revising the third draft article based on comments from internal peer reviewers to produce a fourth draft article for EPA management review,
  - compiling internal peer review comments and preparing a spreadsheet that includes the full set of comments and responses to each comment,
  - revising the fourth draft article based on EPA management review comments to produce a fifth draft article for submission to a technical journal,
  - providing information to be used as a basis for technical journal selection,
  - formatting the article to meet the selected technical journal requirements,
  - completing the logistics for journal article submission,

- revising the fifth draft article based on comments from external peer reviewers to produce the draft final article for final EPA management clearance,
- revising the draft final article based on final EPA management comments (if applicable) to produce the final journal article,
- resubmitting the final article to the journal editor for publication,
- compiling comments from external peer reviewers and the journal editor and preparing a spreadsheet that includes the full set of comments and responses to each comment for submission with the final technical journal article, *and*
- reviewing galley proofs of the article to identify final article edits, then compiling and submitting the final edits to the journal editor.

All 2013-14 NRSA journal article drafts and related deliverables (e.g., comment response spreadsheets) listed above will be subject to EPA WACOR review and approval. The final 2013-14 NRSA revised journal article and the galley proof edits will also be subject to EPA WACOR review and approval before submission of these deliverables to the technical journal editor.

- **Development of a new technical journal article reporting 2015 GLHHFFTS PFC results in collaboration with other Great Lakes researchers.** A Great Lakes scientist from another agency will have the lead for preparing this article that will report results from multiple studies of PFC contamination in Great Lakes fish. Contractor support for developing this journal article shall consist of preparing initial text and graphics related to the 2015 GLHHFFTS PFC results and any subsequent revisions to the initial text and graphics based on multiple reviews of the article. This support shall also include preparation of responses to peer reviewer comments related to the 2015 GLHHFFTS PFC results.

All draft and revised text and graphics developed to report 2015 GLHHFFTS PFC results in this journal article will be subject to EPA WACOR review and approval. The final 2015 GLHHFFTS PFC text and graphics in this article will also be subject to EPA WACOR review and approval before submission of the final article to the technical journal editor.

- **Development of a new technical journal article reporting 2015 GLHHFFTS dioxin and furan results in collaboration with other Great Lakes researchers.** A scientist involved with other EPA-supported Great Lakes research will have the lead for preparing this article that will report results from multiple studies of dioxin and furan contamination in Great Lakes fish. Contractor support for developing this journal article shall consist of preparing initial text and graphics related to the 2015 GLHHFFTS dioxin and furan results and any subsequent revisions to the initial text and graphics based on multiple reviews of the article. This support shall also include preparation of responses to peer reviewer comments.

All draft and revised text and graphics developed to report 2015 GLHHFFTS dioxin and furan results in this journal article will be subject to EPA WACOR review and approval. The final

2015 GLHHFFTS dioxin and furan text and graphics in this article will also be subject to EPA WACOR review and approval before submission of the final article to the technical journal editor.

- **Preparation of the 2013-14 NRSA Human Health Fish Tissue Study results summary.** The Contractor shall provide support for preparing a summary of the human health fish tissue study results for incorporation into EPA's comprehensive final report on the 2013-14 National Rivers and Streams Assessment (NRSA) being produced jointly by the Office of Wetlands, Oceans, and Watersheds within the Office of Water and the Office of Research and Development. This support shall include the following:
  - summarizing statistical results for the 2013-14 NRSA fish fillet tissue contaminants (fish contamination and trends results),
  - preparing the first draft text and graphics for this report based on the summary-level results,
  - revising the first draft text and graphics based on EPA WACOR comments to produce the draft final text and graphics for EPA management review, *and*
  - revising the draft final text and graphics based on EPA management comments to produce the final text and graphics.

All draft and revised text and graphics developed to report 2013-14 NRSA Human Health Fish Tissue Study results in the NRSA 2013-14 final report will be subject to EPA WACOR review and approval. The final human health fish tissue study text and graphics will also be subject to EPA WACOR review and approval before they are transmitted to the NRSA Project Leader for incorporation into the final report.

- **Preparation of the 2015 Great Lakes Human Health Fish Fillet Tissue Study (GLHHFFTS) results summary.** The Contractor shall provide support for preparing a summary of the 2015 GLHHFFTS results for incorporation into EPA's comprehensive final report on the 2015 National Coastal Condition Assessment (NCCA) being produced jointly by the Office of Wetlands, Oceans, and Watersheds within the Office of Water and the Office of Research and Development. This support shall include the following:
  - summarizing statistical results for the 2015 GLHHFFTS fish fillet tissue contaminants (fish contamination and trends results),
  - preparing the first draft text and graphics for this report based on the summary-level results,
  - revising the first draft text and graphics based on EPA WACOR comments to produce the draft final text and graphics for EPA management review, *and*
  - revising the draft final text and graphics based on EPA management comments to produce the final text and graphics.

All draft and revised text and graphics developed to report 2015 GLHHFFTS results in the NCCA 2015 final report will be subject to EPA WACOR review and approval. The final 2015

GLHHFFTS text and graphics will also be subject to EPA WACOR review and approval before they are transmitted to the NCCA Project Leader for incorporation into the final report.

The Contractor shall provide support for reviewing a draft technical journal article reporting the fatty acid results for the 2015 GLHHFFTS. The Contractor shall review the draft technical journal article, prepare comments on the article, and submit the comments to the EPA WACOR. The Contractor shall also provide support for compiling comments from other technical journal article reviewers as specified by the EPA WACOR in written technical direction.

VII. DELIVERABLES AND SCHEDULE:

The Contractor shall provide all written deliverables, such as documents, reports, and summaries, in both hard copy and electronic form. The Contractor shall ensure that all software and fonts used to develop deliverables are readily available on the OST computer network and compatible with OST printer systems. The Contractor shall follow the quality assurance and quality control plan under Contract Number EP-C-14-016 and the applicable fish contamination study QAPPs in preparing work assignment deliverables. EPA generally requires one to four hard copies for most deliverables. The specific number of copies that EPA requires for each deliverable will be identified in written technical direction issued by the EPA WACOR.

The Contractor shall adhere to the following specifications in producing deliverables under this work assignment:

1. The Contractor shall subject all written deliverables to QA/QC measures, including proofreading, grammar, readability, consistency of style, consistent formats of tables and figures, etc.

2. The Contractor shall submit all deliverables to the EPA WACOR in the form of hard copy and electronic files in both WORD and PDF formats unless otherwise specified by the EPA WACOR.

3. The Contractor shall produce deliverables submitted on an annual, quarterly, monthly, or weekly basis in a format that is identical to formats used for these deliverables in earlier years of a study unless otherwise specified by the EPA WACOR. The EPA WACOR will provide copies of past deliverables to serve as templates for developing these periodic deliverables.

4. The Contractor shall produce hard copy deliverables on bright white bond paper that contains no more than 50% recycled stock.

5. All draft and final deliverables are subject to EPA WACOR review and approval prior to final dissemination.

6. All deliverables produced for public release shall be 508 compliant.

Routine delivery of deliverables shall be by overnight mail unless another alternative is specifically requested by the EPA WACOR. Below is a summary of deliverables and schedule for Tasks 1-8. Please note that the number of days specified for deliverables under the schedule column in the table below refers to business days.

TASK	DELIVERABLES	SCHEDULE
1	Work plan and monthly reports	As specified in Contract EP-C-14-016
2	Fish Plug Study fish collection and preparation QAPP first draft	As specified in EPA WACOR written technical direction
	Fish Plug Study fish collection and preparation QAPP subsequent drafts	2 days after receipt of WACOR comments
	Fish Plug Study fish collection and preparation final QAPP	2 days after receipt of signatures from approvers
2	Fish sampling draft materials for 2018-19 NRSA QAPP	As specified in EPA WACOR written technical direction
	Fish sampling final materials for 2018-19 NRSA QAPP	3 days after receipt of WACOR comments
2	2018-19 NRSA fish sample preparation QAPP first draft	As specified in EPA WACOR written technical direction
	2018-19 NRSA fish sample preparation QAPP subsequent drafts	3 days after receipt of WACOR comments
	2018-19 NRSA fish sample preparation QAPP final	3 days after receipt of signatures from approvers
2	Fish Plug Study analytical QAPP review comments	5 days after receipt of draft QAPP
2	2015 GLHHFFTS CEC analysis QAPP review comments	5 days after receipt of draft QAPP
2	Fish Plug Study field data QC review records	8 weeks after completion of final fish sampling trip
2	2015 GLHHFFTS dioxin/furan statistical input file QC review comments	1 week after receipt of the input file
2	2015 GLHHFFTS fatty acid data file QC review comments	1 week after receipt of the data file
2	Fish Plug Study mercury data file QC review comments	1 week after receipt of the data file

2	Fish Plug Study selenium data file QC review comments	1 week after receipt of the data file
2	2015 GLHHFFTS dioxin/furan statistical output file QC review comments	2 weeks after receipt of the output file
2	2010 GLHHFTS analytical QA report review comments	2 weeks after receipt of the report
2	2013-14 NRSA analytical QA report review comments	2 weeks after receipt of the report
2	2015 GLHHFFTS analytical QA report review comments	2 weeks after receipt of the report
2	Fish study documentation for the annual OW QA report	As specified in EPA WACOR written technical direction
3	Presentation, briefing, training, and program materials	As specified in EPA WACOR written technical direction
3	Meeting agendas, summaries, evaluations, etc.	As specified in EPA WACOR written technical direction
4	2018-19 NRSA draft revised human health fish sampling protocols 2018-19 NRSA final revised human health fish sampling protocols	As specified in EPA WACOR written technical direction 3 days after receipt of WACOR comments
4	Review comments on 2018-19 NRSA documents and forms	5 days after receipt of documents and 2 days after receipt of forms
4	Whole fish sampling kits for the 2018-19 NRSA	As specified in EPA WACOR written technical direction
4	2018-19 NRSA weekly fish sampling progress reports	Wednesdays after the end of each fish sampling week
4	Fish Plug Study draft designs for forms and labels Fish Plug Study final designs for forms and labels	As specified in EPA WACOR written technical direction 3 days after receipt of WACOR comments
4	Fish Plug Study whole fish and fish plug sampling and shipping draft protocols Fish Plug Study whole fish and fish plug sampling and shipping final protocols	As specified in EPA WACOR written technical direction 3 days after receipt of WACOR comments

4	Fish Plug Study fish sampling plans	One week prior to each fish sampling trip
4	Fish Plug Study sampling kits	One week prior to each fish sampling trip
4	Fish Plug Study whole fish and plug samples	As specified in the fish sampling plans
4	Draft Master Spreadsheet for the Fish Plug Study Final Master Spreadsheet for the Fish Plug Study	3 weeks after final fish sampling trip 1 week after receipt of WACOR comments
4	Final 2010 GLHHFTS cumulative fish sampling activity report	2 weeks after receipt of WACOR comments on draft report
4	Final 2013-14 NRSA cumulative fish sampling activity report	2 weeks after receipt of WACOR comments on draft report
4	Draft 2015 GLHHFFTS cumulative fish sampling activity report Final 2015 GLHHFFTS cumulative fish sampling activity report	As specified in EPA WACOR written technical direction 2 weeks after receipt of WACOR comments on draft report
5	Fish Plug Study draft fish sample preparation SOP Fish Plug Study final fish sample preparation SOP	As specified in EPA WACOR written technical direction 1 week after receipt of WACOR comments
5	Fish Plug Study fish sample preparation QC results	As per laboratory data delivery schedule
5	Fish Plug Study fish sample preparation weekly progress reports	Tuesdays after each week of fish sample preparation
5	Fish Plug Study fillet and plug tissue sample shipments to designated analytical laboratories	Initiation of shipments as required for conformance with laboratory data delivery schedules

5,	2018-19 NRSA draft fish sample preparation SOP 2018-19 NRSA final fish sample preparation SOP	As specified in EPA WACOR written technical direction 1 week after receipt of WACOR comments
5	2018-19 NRSA draft fish sample preparation instructions 2018-19 NRSA final fish sample preparation instructions	One week after receipt of each set of 20 fish samples 2 days after receipt of WACOR comments
6	Interim and cumulative fish study data summaries and graphics	As specified in EPA WACOR written technical direction
6	Fish Plug Study draft statistical analysis plan Fish Plug Study final statistical analysis plan	As specified in EPA WACOR written technical direction 1 week after receipt of WACOR comments
6	Fish Plug Study statistical analysis results	As specified in the statistical analysis plan
6	Distribution of NLFTS data CDs	Within 24 hours of receipt of data request from EPA WACOR
7	Updated and new 2015 GLHHFFTS posters	As specified in EPA WACOR written technical direction
7	Fish study web materials	As specified in EPA WACOR written technical direction
8	2010 GLHHFFTS journal article draft revisions and final revision	As specified in EPA WACOR written technical direction
8	2013-14 NRSA journal article drafts and final article	As specified in EPA WACOR written technical direction
8	Draft and final text and graphics for a journal article reporting 2015 GLHHFFTS PFC results	As specified in EPA WACOR written technical direction
8	Draft and final 2013-14 NRSA HH Fish Tissue Study results summary Draft and final 2015 GLHHFFTS results summary	As specified in EPA WACOR written technical direction

8	Review comments for 2015 GLHHFFTS fatty acid journal article	As specified in EPA WACOR written technical direction

VIII. TRAVEL:

During this WA performance period, EPA anticipates Contractor long distance travel to the following events: three scientific conferences and meetings (described under Task 3, Activity 3), eleven training workshops for the 2018-19 NRSA (described under Task 3, Activity 3), and six fish sampling trips for the Fish Plug Evaluation Study (described under Task 4, Activity 2). Staff requirements and information for estimating travel costs are provided below for these travel events. Please note that assumptions for travel locations and dates (duration) are marked with bold font.

Summary Travel Information for Three Scientific Conferences and Meetings (described under Task 3)

- 2017 SETAC Meeting
  - Location: Minneapolis, MN
  - Dates: November 12-16 (plus two travel days)
  - Staff required: One Senior Fisheries Biologist to serve as a presenter

- 2018 Great Lakes Regional Meeting
  - **Assumed** Location: Chicago, IL
  - **Assumed** Duration: 3 days, 2017 or 2018 (plus two travel days)
  - Staff required: One Senior Fisheries Biologist to serve as a presenter

- 2018 National Water Quality Monitoring Conference
  - **Assumed** Location: Seattle, WA
  - **Assumed** Duration: 4 days (plus two travel days)
  - Staff required: One Senior Fisheries Biologist and an additional fish study support team member to serve as presenters

Summary Travel Information for Eleven 2018-19 NRSA Fish Sampling Training Workshops (described under Task 3)

For estimating costs for each of the 11 training workshops, assume the following:

- One Trainer per workshop (see Trainer qualifications described under Task 3)
- **Assumed** duration of 5 days per workshop (3 days for training and 2 days for travel)
- **Assumed** locations for individual workshops as follows:
  - 2018 NRSA Train-the-Trainer workshop in Tulsa, OK during March 2018

- Region 1 NRSA training workshop in North Chelmsford, MA during June 2018
- Region 2 NRSA training workshop in Trenton, NJ during April 2018
- Region 3 NRSA training workshop in Wheeling, WV during May 2018
- Region 4 NRSA training workshop in Atlanta, GA during April 2018
- Region 5 NRSA training workshop in Chicago, IL during May 2018
- Region 6 NRSA training workshop in Dallas, TX during April 2018
- Region 7 NRSA training workshop in Kansas City, MO during May 2018
- Region 8 NRSA training workshop in Denver, CO during May 2018
- Region 9 NRSA training workshop in Sacramento, CA during April 2018
- Region 10 NRSA training workshop in Portland, OR during June 2018

EPA also anticipates that local travel to quarterly fish study team meetings will be required as described under Task 3. At a minimum, three Tetra Tech staff serving as the Work Assignment Leader/Senior Fisheries Biologist, the Fish Study Logistics Coordinator, and a designated note-taker with fish study support experience shall attend the quarterly fish study team meetings. The EPA WACOR anticipates scheduling all the fish study team meetings for one day at EPA Headquarters during the months of July 2017, October 2017, February 2018, and May 2018.

Summary Travel Information for Six Fish Sampling Trips for the Fish Plug Evaluation Study (described under Task 4)

For estimating costs for each of the **3 Great Lakes fish sampling trips**, assume the following:

- One Contractor staff with substantial fish sampling experience
- Charter boat rental for one week
- **Assumed** duration of 9 days per trip (7 sampling days and 2 travel days)
- **Assumed** locations for individual sampling trips as follows:
  - Trip 1 to northern Lake Michigan
  - Trip 2 to central and southern Lake Michigan
  - Trip 3 to Lake Erie

For estimating costs for each of the **3 Mid-Atlantic Rivers fish sampling trips**, assume the following:

- Up to a 3-person fish sampling crew (as required to meet safety standards) with substantial fish sample collection and boat and equipment operation experience
- **Assumed** duration of 5 days per trip (4 sampling days and 1 travel day)
- **Assumed** locations for individual sampling trips as follows:
  - Trip 1 to Potomac River locations with public access
  - Trip 2 to Susquehanna River locations with public access
  - Trip 3 to Delaware River locations with public access

Any travel chargeable to this work assignment shall be allowable only in accordance with the limitations of FAR 31.205-43 and FAR 31.205-46, and must be approved by the EPA CL COR and EPA WACOR prior to travel taking place.

IX. PRINTING:

All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

X. CONTRACTOR IDENTIFICATION

Contractor personnel shall clearly identify corporate affiliation at the start of any meeting or training workshop. While attending EPA-sponsored meetings, conferences, symposia, etc., or while on a Government site, Contractor personnel shall wear a badge that identifies the individual as a contractor employee. Contractor personnel are strictly prohibited from acting as a representative of the Agency at meetings, conferences, symposia, etc.

XI. MEETINGS, CONFERENCES, TRAINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than $20,000, shall be obtained by the EPA CL COR as needed and provided to the Contracting Officer. Work under conference-related activities and expenses shall not occur until this approval is obtained and provided by the EPA CL COR. The expense for activities related to each conference, meeting, and training event described in this work assignment shall not exceed $20,000. All conferences, meetings, and training workshops referred to in Task 3 of the PWS (except the quarterly meetings requiring only local travel) will be planned and funded by other organizations, so the EPA WACOR will not require support for any of these events that exceeds $20,000.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-03

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Technical Support for EPA WQS

Contractor	Specify Section and paragraph of Contract SOW
TETRA TECH, INC.	3,2, 3.4, 3.5, 3.6, 3.7

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 07/12/2017 To 06/30/2018

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period:	Cost/Fee:	LOE:
08/05/2014 To 06/30/2018		0
This Action:		1,850
Total:		1,850

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee	LOE:
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name: Thomas Gardner (Signature) (Date)		Branch/Mail Code: Phone Number: 202-566-0386 FAX Number:
Project Officer Name: Thomas Gardner (Signature) (Date)		Branch/Mail Code: Phone Number: 202-566-0386 FAX Number:
Other Agency Official Name (Signature) (Date)		Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Courtney Stallworth (Signature) (Date)		Branch/Mail Code: Phone Number: 513-487-2002 FAX Number:

PERFORMANCE WORK STATEMENT
EPA Contract EP-C-14-016
Work Assignment 3-03

I. TITLE: Technical Support for EPA Rulemakings, Determinations and Other Water Quality Standards-Related Actions

II. WORK ASSIGNMENT CONTRACTING OFFICER REPRESENTATIVE (WACOR):

Thomas Gardner
U.S. EPA, Office of Water
1200 Pennsylvania Ave., N.W., 4305T
Washington, DC 20460
Phone: (202) 566-0386
E-mail: gardner.thomas@epa.gov

ALTERNATE WACOR :

Julianne McLaughlin
U.S. EPA, Office of Water
1200 Pennsylvania Ave., N.W., 4305T
Washington, DC 20460
Phone: (202) 566-2542
E-mail : mclaughlin.julianne@epa.gov

III. PERFORMANCE PERIOD: **Date of Issuance** through June 30, 2018

IV. LEVEL OF EFFORT: **1850 Direct Labor Hours**

V. SUPPORTS CONTRACT PWS SECTIONS: 3.2, 3.4, 3.5, 3.6. 3.7, 3.11

VI. BACKGROUND:

This Work Assignment 3-03 is essentially identical to its predecessor Work Assignment 2-03.

EPA's Office of Science and Technology (OST) is responsible for developing sound, scientifically defensible water quality standards, criteria, advisories, guidelines, limitations and standards guidelines under the Clean Water Act (CWA). Water quality standards define the water quality goals of a water body by designating uses, setting criteria to protect those uses and establishing provisions to protect water bodies from pollutants.

Section 303 of the CWA requires states and authorized tribes to adopt water quality standards for waters of the United States within their jurisdictions. The CWA further requires states to submit these water quality standards for EPA approval and EPA must then take action within certain regulatory deadlines. Section 303(c) of the CWA directs the Administrator to promulgate water quality standards to supersede state standards that have been disapproved, or in any case where

the Administrator determines that a new or revised standard is needed to meet the CWA's requirements. This is known as a "Federal Promulgation" or an "Agency Rulemaking". The CWA also gives EPA the authority to act on existing state water quality standards that have been previously approved by EPA if EPA identifies a provision(s) that is not consistent with the CWA. This is known as an "Administrator Finding", "Administrator Determination" or "CWA Section 303(c)(4)(B) Determination". EPA always conducts in-depth and issue-specific technical research and analysis in order to reach its conclusions.

This Work Assignment will perform a variety of specific subtasks to support the Water Quality Standards Program at EPA. The WACOR will fill in the specific details of the general description of work or documentation items through technical direction to the Contractor. Additional background and more details regarding the Work Assignment are provided under the individual task descriptions.

VI. TASKS

TASK 1 – Kickoff Meeting

The contractor shall participate in a Work Assignment (WA) kickoff meeting with EPA staff via conference call within five days of WA award. The purpose of the kickoff meeting is to discuss and clarify expectations, answer any questions, and identify and resolve any potential problems. The purpose of the kickoff meeting is not to change any terms and conditions of the WA. Any change to the WA that results from the kickoff meeting shall be made only by a contract modification executed by the Contracting Officer. Kickoff meeting participants shall not take action that in any way alters the WA. The contractor shall provide notes from the Kickoff meeting to the Work Assignment COR (WA-COR) within two business days.

Given that the specific details for subtasks within each task will be provided through future written technical direction from the EPA WA-COR, the kick-off meeting will include discussion of the key staff who could be involved in the individual tasks, any specific expertise they could provide to the types of work described in each task plus examples of specific projects that are similar in topic area and scope to those described under each task. Additional details on the technical expertise required for each task are provided under the individual task descriptions.

TASK 2 – Quality Assurance

Subtasks in this WA may require the use of primary and/or secondary data and shall be implemented in accordance with an approved quality assurance project plan (QAPP). As the tasks for this WA are essentially the same as those in WA 2-03, the contractor shall use the approved QAPP developed for that WA and shall assure that the quality of the primary or secondary data and analyses are accurate and correct. If needed, the contractor shall hold a conference call with the EPA WA-COR prior to submission of the QAPP to discuss any issues needing clarification.

For each deliverable, the contractor shall provide a statement that all QA procedures were followed, and a statement describing any needed changes to those procedures, if necessary. The contractor shall also prepare a quality assurance documentation report when all work is finished under this WA.

TASK 3 – Provide Technical Support

Background: Given the complexity of water quality standards development and implementation and the Agency's associated regulatory and often court-imposed deadlines, EPA often finds itself in the position of quickly needing to conduct complex analyses in order to promulgate federal water quality standards, make an Administrator determination, or take some other water quality standards-related action. Data collection and analysis is a necessary component of the technical preparation for such actions. In quick order, the extent of a problem needs to be understood, including waters affected, available monitoring data, impairment information, Total Maximum Daily Loads (TMDLs), permits, applicable state standards and state requirements in place for point source and nonpoint source control, for example.

Examples of past federal promulgations include EPA's 2003 promulgation in Kansas of water quality standards for 1,288 lakes and streams, EPA's establishment of federal bacteria criteria in 2004 for those states and territories with Great Lakes or coastal recreational waters that had not yet adopted standards in accordance with the Beach Act of 2000, and EPA's recent Florida Inland Waters Rule. Examples of past Agency determinations include EPA's 2009 decision that new or revised water quality standards were needed for the area of the Mississippi River around St. Louis and EPA's 2009 determination that new or revised nutrient standards were needed in the state of Florida. Other water quality standards-related actions have included complex state approvals or disapprovals, or responding to a water quality standards-related petition, notice of intended action (NOI) or lawsuit. In all of the aforementioned cases, EPA conducted in-depth and issue-specific technical research and analysis in order to reach its final conclusions.

Task Description: The contractor shall provide the kind of technical support described above, over the remainder of the 2017 calendar year and into 2018. The technical support shall assist the efforts of EPA Headquarters, EPA Regions, States or Tribes as outlined in the following subtasks:

Subtask A. Collect and summarize information.

A.1 From data sources on water quality standards, recreational uses, permits, effluent monitoring data, ambient monitoring data, effluent guidelines, 303D listings, TMDL development, industry and municipality profile information and other data as appropriate.

A.2 Field sampling. Provide technical support for performing field sampling for water quality data, flow conditions, water levels, velocity and physical conditions of a water body.

Subtask B: Provide critical review and summary reports of water quality criteria, standards, TMDLs and permits (including any related support documentation) developed, revised or modified by EPA, States/Tribes;

Subtask C: Conduct limited literature searches, reviews and summaries to inform or assist in developing, revising or taking action on water quality criteria or standards by EPA, States, or Tribes; often with quick response required;

Subtask D: Prepare analyses of data and information to inform or assist in developing, revising or taking action on water quality criteria or standards by EPA, States/Tribes; often with quick response required;

Subtask E: Conduct critical review and summary of reports, publications or other analyses developed by State/Tribes, the regulated community, non-governmental organizations, or other third parties focused on water quality criteria, standards and permits; often with quick response required.

Subtask F: Provide technical and analytical support regarding the data and other information in the WQS Information and Tracking System, including its components such as WATA and the WQS Repository.

The EPA WA-COR will provide the specific details of the technical support needed through written technical direction to the contractor.

Technical Expertise Required:

The key technical individual(s) who work on this work assignment shall have an expert working knowledge of EPA's water quality standards program, including EPA's existing 304(a) criteria
(for protection of aquatic life and human health). Furthermore, the key technical individual(s) must have working knowledge of the various additional guidances and approaches EPA has developed for modifying/implementing the water quality standards program, as well as experience and/or working knowledge of the following websites and databases:

- EPA's WQS Repository: www.epa.gov/waterscience/standards/wqslibrary/
- The Antidegradation Clearinghouse: http://www.epa.gov/waterscience/antideg/antidegclear/index.html
- IRIS: http://epa.gov/iris/
- STORET: http://www.epa.gov/storet/
- USGS Monitoring Data Websites
- Dflow: http://www.epa.gov/waterscience/models/dflow/
- CORMIX for Mixing Zones: http://www.epa.gov/waterscience/models/cormix.html
- Permits Compliance System (PCS) Database and the ICIS-NPDES (Integrated Compliance Information System – National Pollutant Discharge Elimination System):
- http://www.epa.gov/enviro/facts/pcs-icis/search.html

- State-specific water quality standards, permits and 303(d) listing and TMDL websites/databases
- GIS systems in order to spatially lay out information on mixing zones, permittees, environmental justice, land use, etc.
- Discharge Monitoring Report (DMR) Pollutant Loading Tool: www.epa.gov/pollutantdischarges

TASK 4 – Provide Summary Reports and Presentations

Background: Pre-decisional processes require the collection and analysis of in-depth and issue-specific technical research and analysis. The information is often needed in a summarized format to give progress updates to internal management.

Task Description: The contractor shall provide a variety of summary materials for the purpose of presenting information to and briefing internal management. Given the case-specific nature of these requests, additional details/information regarding what these deliverables will be provided via written technical direction.

Subtask A. Fact Sheets and White Papers
Subtask B. Visual Media
Subtask C. Case Studies

TASK 5 – Information Quality Review

The contractor shall prepare and update as necessary the Information Quality Guidelines Checklist for Influential Information, along with supporting information. This checklist is described by the Office of Water Information Quality Guidelines: Pre-Dissemination Review Guidance and Checklists, Attachment B.

TASK 6 - Assist with Communication and Outreach

The contractor shall assist with efforts to communicate information about water quality standards-related actions to the public and key stakeholders. This includes development of communication strategies that identify target audiences, messages to reach those audiences, and products appropriate for each audience, in addition to identifying distribution mechanisms, and evaluating outreach efforts.

VII. SCHEDULE OF BENCHMARKS & DELIVERABLES:

Task/ Subtask	DELIVERABLE	Schedule
1	**Kickoff Meeting Notes**	Due two business days after Kickoff Meeting

2	**QAPP** **Final Quality Assurance Documentation Report**	Due within five business days after Kickoff Meeting On or before June 30, 2018
3.A.1	**Information Collection**	Within 7 days of written technical direction
3.A.2	**Field Sampling**	Within 14 days of written technical direction
3.B	**Critical Review, Summary Report of State/EPA Information**	Due as requested by the EPA WA-COR via written technical direction
3.C	**Literature Searches, Reviews, Summaries**	Due as requested by the EPA WA-COR via written technical direction
3.D	**Data/Information Analyses**	Due as requested by the EPA WA-COR via written technical direction
3.E	**Critical Review, Summary Report of 3rd Party Information**	Due as requested by the EPA WA-COR via written technical direction
3.F	**Technical and Analytical Work Supporting WQSITS, WATA, and the WQS Repository**	Due as requested by the EPA WA-COR via written technical direction
4	**Presentations and Follow-up Materials**	Due as requested by the EPA WA-COR via written technical direction
5	**Information Quality Guidelines Checklist**	Due as requested by the EPA WA-COR via written technical direction
6	**Communication Strategies**	Due as requested by the EPA WA-COR via written technical direction

Draft written deliverable(s) for review by the EPA WA-COR shall be prepared in accordance with the written Technical Direction provided by the WACOR and submitted in accordance with the Work Assignment Schedule of Benchmarks and Deliverables.

Final written deliverable(s) shall be prepared in accordance with the written Technical Direction provided by the EPA WA-COR and submitted in accordance with the schedule in the WA Schedule of Benchmarks and Deliverables, after any written comments are received from the EPA WA-COR. All final deliverables will be compliant, as appropriate, with section 508 of the Rehabilitation Act of 1973, as amended.

TRAVEL: Some travel is anticipated under this work assignment. For cost estimate purposes, assume three one-day trips for one person from contractor location to any site nationwide (use trip to Florida to generate estimate) as identified by the EPA WA-COR, with site visit schedules arranged to minimize travel time. All travel under this WA shall be in compliance with contract requirements.

PRINTING
All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

CONTRACTOR IDENTIFICATION

Contractor personnel shall clearly identify corporate affiliation at the start of any meeting or training workshop. While attending EPA-sponsored meetings, conferences, symposia, etc., or while on a Government site, Contractor personnel shall wear a badge that identifies the individual as a contractor employee. Contractor personnel are strictly prohibited from acting as a representative of the Agency meetings, conferences, symposia, etc.

MEETINGS, CONFERENCES, TRANINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than $20,000, shall be obtained by the EPA CL COR as needed and provided to the Contracting Officer. Work under conference-related activities and expenses shall not occur until this approval is obtained and provided by the EPA CL COR.

VII. ATTACHMENTS:

Attachment A:	General WA Background Information
Attachment B:	Office of Water Information Quality Guidelines: Pre-Dissemination Review Guidance and Checklists

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-03

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base X Option Period Number	

Contractor: TETRA TECH, INC.

Specify Section and paragraph of Contract SOW:

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 07/12/2017 To 06/30/2018

Comments:
Changed WACOR to Julianne McLaughlin and Alt WACOR to Thomas Gardner and to increase the scope of work per the attached PWS.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 08/05/2014 To 06/30/2018 — Cost/Fee: — LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: — Cost/Fee: — LOE:

Cumulative Approved: — Cost/Fee: — LOE:

Work Assignment Manager Name: Julianne McLaughlin (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 202-566-2542	
	FAX Number:	
Project Officer Name: Tanyan Bailey (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 202-564-3133	
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 513-487-2002	
	FAX Number:	

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-03

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base X Option Period Number	

Contractor: TETRA TECH, INC.

Specify Section and paragraph of Contract SOW:

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 07/12/2017 To 06/30/2018

Comments:
Changed WACOR to Julianne McLaughlin and alt WACOR to Thomas Gardner and to increase the scope of work per the attached PWS.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 08/05/2014 To 06/30/2018		
This Action:		
Total:		

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Julianne McLaughlin (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 202-566-2542	
	FAX Number:	
Project Officer Name: Tanyan Bailey (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 202-564-3133	
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth Courtney Stallworth ELECTRONIC SIGNATURE (Signature) 12/13/2017 (Date)	Branch/Mail Code:	
	Phone Number: 513-487-2002	
	FAX Number:	

PERFORMANCE WORK STATEMENT
EPA Contract EP-C-14-016
Work Assignment 3-03, Amendment 1

I. TITLE: Technical Support for EPA Rulemakings, Determinations and Other Water Quality Standards-Related Actions

II. WORK ASSIGNMENT CONTRACTING OFFICER REPRESENTATIVE (WACOR):

Thomas Gardner
U.S. EPA, Office of Water
1200 Pennsylvania Ave., N.W., 4305T
Washington, DC 20460
Phone: (202) 566-0386
E-mail: gardner.thomas@epa.gov

ALTERNATE WACOR :

Julianne McLaughlin
U.S. EPA, Office of Water
1200 Pennsylvania Ave., N.W., 4305T
Washington, DC 20460
Phone: (202) 566-2542
E-mail : mclaughlin.julianne@epa.gov

III. PERFORMANCE PERIOD: July 1, 2017 through June 30, 2018

IV. LEVEL OF EFFORT: 1071 Additional Direct Labor Hours

V. SUPPORTS CONTRACT PWS SECTIONS: 3.2, 3.4, 3.5, 3.6. 3.7, 3.11

VI. BACKGROUND:

This Work Assignment 3-03 is essentially identical to its predecessor Work Assignment 2-03.

EPA's Office of Science and Technology (OST) is responsible for developing sound, scientifically defensible water quality standards, criteria, advisories, guidelines, limitations and standards guidelines under the Clean Water Act (CWA). Water quality standards define the water quality goals of a water body by designating uses, setting criteria to protect those uses and establishing provisions to protect water bodies from pollutants.

Section 303 of the CWA requires states and authorized tribes to adopt water quality standards for waters of the United States within their jurisdictions. The CWA further requires states to submit these water quality standards for EPA approval and EPA must then take action within certain regulatory deadlines. Section 303(c) of the CWA directs the Administrator to promulgate water quality standards to supersede state standards that have been disapproved, or in any case where

the Administrator determines that a new or revised standard is needed to meet the CWA's requirements. This is known as a "Federal Promulgation" or an "Agency Rulemaking". The CWA also gives EPA the authority to act on existing state water quality standards that have been previously approved by EPA if EPA identifies a provision(s) that is not consistent with the CWA. This is known as an "Administrator Finding", "Administrator Determination" or "CWA Section 303(c)(4)(B) Determination". EPA always conducts in-depth and issue-specific technical research and analysis in order to reach its conclusions.

This Work Assignment will perform a variety of specific subtasks to support the Water Quality Standards Program at EPA. The WACOR will fill in the specific details of the general description of work or documentation items through technical direction to the Contractor. Additional background and more details regarding the Work Assignment are provided under the individual task descriptions.

The purpose of this Amendment is to increase funding to the work assignment to cover an increase in the level of effort with an additional 1071 hours. The funding increase is not associated with any new tasks but rather an increase in the support needed on all tasks.

VI. TASKS

TASK 1 – Kickoff Meeting

The contractor shall participate in a Work Assignment (WA) kickoff meeting with EPA staff via conference call within five days of WA award. The purpose of the kickoff meeting is to discuss and clarify expectations, answer any questions, and identify and resolve any potential problems. The purpose of the kickoff meeting is not to change any terms and conditions of the WA. Any change to the WA that results from the kickoff meeting shall be made only by a contract modification executed by the Contracting Officer. Kickoff meeting participants shall not take action that in any way alters the WA. The contractor shall provide notes from the Kickoff meeting to the Work Assignment COR (WA-COR) within two business days.

Given that the specific details for subtasks within each task will be provided through future written technical direction from the EPA WA-COR, the kick-off meeting will include discussion of the key staff who could be involved in the individual tasks, any specific expertise they could provide to the types of work described in each task plus examples of specific projects that are similar in topic area and scope to those described under each task. Additional details on the technical expertise required for each task are provided under the individual task descriptions.

TASK 2 – Quality Assurance

Subtasks in this WA may require the use of primary and/or secondary data and shall be implemented in accordance with an approved quality assurance project plan (QAPP). As the tasks for this WA are essentially the same as those in WA 2-03 and WA 3-03, the contractor shall use the approved QAPP developed for that WA and shall assure that the quality of the

primary or secondary data and analyses are accurate and correct. If needed, the contractor shall hold a conference call with the EPA WA-COR prior to submission of the QAPP to discuss any issues needing clarification.

For each final deliverable, the contractor shall provide a statement that all QA procedures were followed, and a statement describing any needed changes to those procedures, if necessary. The contractor shall also prepare a quality assurance documentation report when all work is finished under this WA.

TASK 3 – Provide Technical Support

Background: Given the complexity of water quality standards development and implementation and the Agency's associated regulatory and often court-imposed deadlines, EPA often finds itself in the position of quickly needing to conduct complex analyses in order to promulgate federal water quality standards, make an Administrator determination, or take some other water quality standards-related action. Data collection and analysis is a necessary component of the technical preparation for such actions. In quick order, the extent of a problem needs to be understood, including waters affected, available monitoring data, impairment information, Total Maximum Daily Loads (TMDLs), permits, applicable state standards and state requirements in place for point source and nonpoint source control, for example.

Examples of past federal promulgations include EPA's 2003 promulgation in Kansas of water quality standards for 1,288 lakes and streams, EPA's establishment of federal bacteria criteria in 2004 for those states and territories with Great Lakes or coastal recreational waters that had not yet adopted standards in accordance with the Beach Act of 2000, and EPA's recent Florida Inland Waters Rule. Examples of past Agency determinations include EPA's 2009 decision that new or revised water quality standards were needed for the area of the Mississippi River around St. Louis and EPA's 2009 determination that new or revised nutrient standards were needed in the state of Florida. Other water quality standards-related actions have included complex state approvals or disapprovals, or responding to a water quality standards-related petition, notice of intended action (NOI) or lawsuit. In all of the aforementioned cases, EPA conducted in-depth and issue-specific technical research and analysis in order to reach its final conclusions.

Task Description: The contractor shall provide the kind of technical support described above, over the remainder of the 2017 calendar year and into 2018. The technical support shall assist the efforts of EPA Headquarters, EPA Regions, States or Tribes as outlined in the following subtasks:

Subtask A. Collect and summarize information.

A.1 From data sources on water quality standards, recreational uses, permits, effluent monitoring data, ambient monitoring data, effluent guidelines, 303D listings, TMDL development, industry and municipality profile information and other data as appropriate.

A.2 Field sampling. Provide technical support for performing field sampling for water quality data, flow conditions, water levels, velocity and physical conditions of a water body.

Subtask B: Provide critical review and summary reports of water quality criteria, standards, TMDLs and permits (including any related support documentation) developed, revised or modified by EPA, States/Tribes;

Subtask C: Conduct limited literature searches, reviews and summaries to inform or assist in developing, revising or taking action on water quality criteria or standards by EPA, States, or Tribes; often with quick response required;

Subtask D: Prepare analyses of data and information to inform or assist in developing, revising or taking action on water quality criteria or standards by EPA, States/Tribes; often with quick response required;

Subtask E: Conduct critical review and summary of reports, publications or other analyses developed by State/Tribes, the regulated community, non-governmental organizations, or other third parties focused on water quality criteria, standards and permits; often with quick response required.

Subtask F: Provide technical and analytical support regarding the data and other information in the WQS Information and Tracking System, including its components such as WATA and the WQS Repository.

The EPA WA-COR will provide the specific details of the technical support needed through written technical direction to the contractor.

Technical Expertise Required:

The key technical individual(s) who work on this work assignment shall have an expert working knowledge of EPA's water quality standards program, including EPA's existing 304(a) criteria (for protection of aquatic life and human health). Furthermore, the key technical individual(s) must have working knowledge of the various additional guidances and approaches EPA has developed for modifying/implementing the water quality standards program, as well as experience and/or working knowledge of the following websites and databases:

- EPA's WQS Repository: www.epa.gov/waterscience/standards/wqslibrary/
- The Antidegradation Clearinghouse: http://www.epa.gov/waterscience/antideg/antidegclear/index.html
- IRIS: http://epa.gov/iris/
- STORET: http://www.epa.gov/storet/
- USGS Monitoring Data Websites
- Dflow: http://www.epa.gov/waterscience/models/dflow/
- CORMIX for Mixing Zones: http://www.epa.gov/waterscience/models/cormix.html

- Permits Compliance System (PCS) Database and the ICIS-NPDES (Integrated Compliance Information System – National Pollutant Discharge Elimination System):
- http://www.epa.gov/enviro/facts/pcs-icis/search.html
- State-specific water quality standards, permits and 303(d) listing and TMDL websites/databases
- GIS systems in order to spatially lay out information on mixing zones, permittees, environmental justice, land use, etc.
- Discharge Monitoring Report (DMR) Pollutant Loading Tool: www.epa.gov/pollutantdischarges

TASK 4 – Provide Summary Reports and Presentations

Background: Pre-decisional processes require the collection and analysis of in-depth and issue-specific technical research and analysis. The information is often needed in a summarized format to give progress updates to internal management.

Task Description: The contractor shall provide a variety of summary materials for the purpose of presenting information to and briefing internal management. Given the case-specific nature of these requests, additional details/information regarding what these deliverables will be provided via written technical direction.

Subtask A. Fact Sheets and White Papers
Subtask B. Visual Media
Subtask C. Case Studies

TASK 5 – Information Quality Review

The contractor shall prepare and update as necessary the Information Quality Guidelines Checklist for Influential Information, along with supporting information. This checklist is described by the Office of Water Information Quality Guidelines: Pre-Dissemination Review Guidance and Checklists, Attachment B.

TASK 6 - Assist with Communication and Outreach

The contractor shall assist with efforts to communicate information about water quality standards-related actions to the public and key stakeholders. This includes development of communication strategies that identify target audiences, messages to reach those audiences, and products appropriate for each audience, in addition to identifying distribution mechanisms, and evaluating outreach efforts.

VII. SCHEDULE OF BENCHMARKS & DELIVERABLES:

Task/ Subtask	DELIVERABLE	Schedule

1	**Kickoff Meeting Notes**	Due two business days after Kickoff Meeting
2	**QAPP** **Final Quality Assurance Documentation Report**	Due within five business days after Kickoff Meeting On or before June 30, 2018
3.A.1	**Information Collection**	Within 7 days of written technical direction
3.A.2	**Field Sampling**	Within 14 days of written technical direction
3.B	**Critical Review, Summary Report of State/EPA Information**	Due as requested by the EPA WA-COR via written technical direction
3.C	**Literature Searches, Reviews, Summaries**	Due as requested by the EPA WA-COR via written technical direction
3.D	**Data/Information Analyses**	Due as requested by the EPA WA-COR via written technical direction
3.E	**Critical Review, Summary Report of 3rd Party Information**	Due as requested by the EPA WA-COR via written technical direction
3.F	**Technical and Analytical Work Supporting WQSITS, WATA, and the WQS Repository**	Due as requested by the EPA WA-COR via written technical direction
4	**Presentations and Follow-up Materials**	Due as requested by the EPA WA-COR via written technical direction
5	**Information Quality Guidelines Checklist**	Due as requested by the EPA WA-COR via written technical direction
6	**Communication Strategies**	Due as requested by the EPA WA-COR via written technical direction

Draft written deliverable(s) for review by the EPA WA-COR shall be prepared in accordance with the written Technical Direction provided by the WACOR and submitted in accordance with the Work Assignment Schedule of Benchmarks and Deliverables.

Final written deliverable(s) shall be prepared in accordance with the written Technical Direction provided by the EPA WA-COR and submitted in accordance with the schedule in the WA Schedule of Benchmarks and Deliverables, after any written comments are received from the EPA WA-COR. All final deliverables will be compliant, as appropriate, with section 508 of the Rehabilitation Act of 1973, as amended.

TRAVEL: Some travel is anticipated under this work assignment. For cost estimate purposes, assume three one-day trips for one person from contractor location to any site nationwide (use trip to Florida to generate estimate) as identified by the EPA WA-COR, with site visit schedules arranged to minimize travel time. All travel under this WA shall be in compliance with contract requirements.

PRINTING

All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

CONTRACTOR IDENTIFICATION

Contractor personnel shall clearly identify corporate affiliation at the start of any meeting or training workshop. While attending EPA-sponsored meetings, conferences, symposia, etc., or while on a Government site, Contractor personnel shall wear a badge that identifies the individual as a contractor employee. Contractor personnel are strictly prohibited from acting as a representative of the Agency meetings, conferences, symposia, etc.

MEETINGS, CONFERENCES, TRANINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than $20,000, shall be obtained by the EPA CL COR as needed and provided to the Contracting Officer. Work under conference-related activities and expenses shall not occur until this approval is obtained and provided by the EPA CL COR.

VII. ATTACHMENTS:

Attachment A:	General WA Background Information
Attachment B:	Office of Water Information Quality Guidelines: Pre-Dissemination Review Guidance and Checklists

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-03

☐ Other ☒ Amendment Number: 000002

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Quick Turnaround

Contractor: TETRA TECH, INC.

Specify Section and paragraph of Contract SOW:

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 07/12/2017 To 06/30/2018

Comments:
The purpose of this Amendment is to increase funding to the work assignment to cover an increase in the level of effort with an additional 414 hours. The funding increase is not associated with any new tasks but rather an increase in the support needed on all tasks.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 08/05/2014 To 06/30/2018		2,921
This Action:		414
Total:		3,335

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Julianne McLaughlin (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-2542
	FAX Number:	
Project Officer Name: Tanyan Bailey (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-564-3133
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2002
	FAX Number:	

PERFORMANCE WORK STATEMENT
EPA Contract EP-C-14-016
Work Assignment 3-03, Amendment 2

I. TITLE: Technical Support for EPA Rulemakings, Determinations and Other Water Quality Standards-Related Actions

II. WORK ASSIGNMENT CONTRACTING OFFICER REPRESENTATIVE (WACOR):

Julianne McLaughlin
U.S. EPA, Office of Water
1200 Pennsylvania Ave., N.W., 4305T
Washington, DC 20460
Phone: (202) 566-2542
E-mail: mclaughlin.julianne@epa.gov

ALTERNATE WACOR :

Thomas Gardner
U.S. EPA, Office of Water
1200 Pennsylvania Ave., N.W., 4305T
Washington, DC 20460
Phone: (202) 566-0386
E-mail : gardner.thomas@epa.gov

III. PERFORMANCE PERIOD: July 1, 2017 through June 30, 2018

IV. LEVEL OF EFFORT: **414 Additional Direct Labor Hours**

V. SUPPORTS CONTRACT PWS SECTIONS: 3.2, 3.4, 3.5, 3.6. 3.7, 3.11

VI. BACKGROUND:

This Work Assignment 3-03 is essentially identical to its predecessor Work Assignment 2-03.

EPA's Office of Science and Technology (OST) is responsible for developing sound, scientifically defensible water quality standards, criteria, advisories, guidelines, limitations and standards guidelines under the Clean Water Act (CWA). Water quality standards define the water quality goals of a water body by designating uses, setting criteria to protect those uses and establishing provisions to protect water bodies from pollutants.

Section 303 of the CWA requires states and authorized tribes to adopt water quality standards for waters of the United States within their jurisdictions. The CWA further requires states to submit these water quality standards for EPA approval and EPA must then take action within certain regulatory deadlines. Section 303(c) of the CWA directs the Administrator to promulgate water quality standards to supersede state standards that have been disapproved, or in any case where

the Administrator determines that a new or revised standard is needed to meet the CWA's requirements. This is known as a "Federal Promulgation" or an "Agency Rulemaking". The CWA also gives EPA the authority to act on existing state water quality standards that have been previously approved by EPA if EPA identifies a provision(s) that is not consistent with the CWA. This is known as an "Administrator Finding", "Administrator Determination" or "CWA Section 303(c)(4)(B) Determination". EPA always conducts in-depth and issue-specific technical research and analysis in order to reach its conclusions.

This Work Assignment will perform a variety of specific subtasks to support the Water Quality Standards Program at EPA. The WACOR will fill in the specific details of the general description of work or documentation items through technical direction to the Contractor. Additional background and more details regarding the Work Assignment are provided under the individual task descriptions.

The purpose of this Amendment is to increase funding to the work assignment to cover an increase in the level of effort with an additional 414 hours. The funding increase is not associated with any new tasks but rather an increase in the support needed on all tasks.

VI. TASKS

TASK 1 – Kickoff Meeting

The contractor shall participate in a Work Assignment (WA) kickoff meeting with EPA staff via conference call within five days of WA award. The purpose of the kickoff meeting is to discuss and clarify expectations, answer any questions, and identify and resolve any potential problems. The purpose of the kickoff meeting is not to change any terms and conditions of the WA. Any change to the WA that results from the kickoff meeting shall be made only by a contract modification executed by the Contracting Officer. Kickoff meeting participants shall not take action that in any way alters the WA. The contractor shall provide notes from the Kickoff meeting to the Work Assignment COR (WA-COR) within two business days.

Given that the specific details for subtasks within each task will be provided through future written technical direction from the EPA WA-COR, the kick-off meeting will include discussion of the key staff who could be involved in the individual tasks, any specific expertise they could provide to the types of work described in each task plus examples of specific projects that are similar in topic area and scope to those described under each task. Additional details on the technical expertise required for each task are provided under the individual task descriptions.

TASK 2 – Quality Assurance

Subtasks in this WA may require the use of primary and/or secondary data and shall be implemented in accordance with an approved quality assurance project plan (QAPP). As the tasks for this WA are essentially the same as those in WA 2-03 and WA 3-03, the contractor shall use the approved QAPP developed for that WA and shall assure that the quality of the

primary or secondary data and analyses are accurate and correct. If needed, the contractor shall hold a conference call with the EPA WA-COR prior to submission of the QAPP to discuss any issues needing clarification.

For each final deliverable, the contractor shall provide a statement that all QA procedures were followed, and a statement describing any needed changes to those procedures, if necessary. The contractor shall also prepare a quality assurance documentation report when all work is finished under this WA.

TASK 3 – Provide Technical Support

Background: Given the complexity of water quality standards development and implementation and the Agency's associated regulatory and often court-imposed deadlines, EPA often finds itself in the position of quickly needing to conduct complex analyses in order to promulgate federal water quality standards, make an Administrator determination, or take some other water quality standards-related action. Data collection and analysis is a necessary component of the technical preparation for such actions. In quick order, the extent of a problem needs to be understood, including waters affected, available monitoring data, impairment information, Total Maximum Daily Loads (TMDLs), permits, applicable state standards and state requirements in place for point source and nonpoint source control, for example.

Examples of past federal promulgations include EPA's 2003 promulgation in Kansas of water quality standards for 1,288 lakes and streams, EPA's establishment of federal bacteria criteria in 2004 for those states and territories with Great Lakes or coastal recreational waters that had not yet adopted standards in accordance with the Beach Act of 2000, and EPA's recent Florida Inland Waters Rule. Examples of past Agency determinations include EPA's 2009 decision that new or revised water quality standards were needed for the area of the Mississippi River around St. Louis and EPA's 2009 determination that new or revised nutrient standards were needed in the state of Florida. Other water quality standards-related actions have included complex state approvals or disapprovals, or responding to a water quality standards-related petition, notice of intended action (NOI) or lawsuit. In all of the aforementioned cases, EPA conducted in-depth and issue-specific technical research and analysis in order to reach its final conclusions.

Task Description: The contractor shall provide the kind of technical support described above, over the remainder of the 2017 calendar year and into 2018. The technical support shall assist the efforts of EPA Headquarters, EPA Regions, States or Tribes as outlined in the following subtasks:

Subtask A. Collect and summarize information.

A.1 From data sources on water quality standards, recreational uses, permits, effluent monitoring data, ambient monitoring data, effluent guidelines, 303D listings, TMDL development, industry and municipality profile information and other data as appropriate.

A.2 Field sampling. Provide technical support for performing field sampling for water quality data, flow conditions, water levels, velocity and physical conditions of a water body.

Subtask B: Provide critical review and summary reports of water quality criteria, standards, TMDLs and permits (including any related support documentation) developed, revised or modified by EPA, States/Tribes;

Subtask C: Conduct limited literature searches, reviews and summaries to inform or assist in developing, revising or taking action on water quality criteria or standards by EPA, States, or Tribes; often with quick response required;

Subtask D: Prepare analyses of data and information to inform or assist in developing, revising or taking action on water quality criteria or standards by EPA, States/Tribes; often with quick response required;

Subtask E: Conduct critical review and summary of reports, publications or other analyses developed by State/Tribes, the regulated community, non-governmental organizations, or other third parties focused on water quality criteria, standards and permits; often with quick response required.

Subtask F: Provide technical and analytical support regarding the data and other information in the WQS Information and Tracking System, including its components such as WATA and the WQS Repository.

The EPA WA-COR will provide the specific details of the technical support needed through written technical direction to the contractor.

Technical Expertise Required:

The key technical individual(s) who work on this work assignment shall have an expert working

knowledge of EPA's water quality standards program, including EPA's existing 304(a) criteria (for protection of aquatic life and human health). Furthermore, the key technical individual(s) must have working knowledge of the various additional guidances and approaches EPA has developed for modifying/implementing the water quality standards program, as well as experience and/or working knowledge of the following websites and databases:

- EPA's WQS Repository: www.epa.gov/waterscience/standards/wqslibrary/
- The Antidegradation Clearinghouse: http://www.epa.gov/waterscience/antideg/antidegclear/index.html
- IRIS: http://epa.gov/iris/
- STORET: http://www.epa.gov/storet/
- USGS Monitoring Data Websites
- Dflow: http://www.epa.gov/waterscience/models/dflow/
- CORMIX for Mixing Zones: http://www.epa.gov/waterscience/models/cormix.html

- Permits Compliance System (PCS) Database and the ICIS-NPDES (Integrated Compliance Information System – National Pollutant Discharge Elimination System):
- http://www.epa.gov/enviro/facts/pcs-icis/search.html
- State-specific water quality standards, permits and 303(d) listing and TMDL websites/databases
- GIS systems in order to spatially lay out information on mixing zones, permittees, environmental justice, land use, etc.
- Discharge Monitoring Report (DMR) Pollutant Loading Tool: www.epa.gov/pollutantdischarges

TASK 4 – Provide Summary Reports and Presentations

Background: Pre-decisional processes require the collection and analysis of in-depth and issue-specific technical research and analysis. The information is often needed in a summarized format to give progress updates to internal management.

Task Description: The contractor shall provide a variety of summary materials for the purpose of presenting information to and briefing internal management. Given the case-specific nature of these requests, additional details/information regarding what these deliverables will be provided via written technical direction.

Subtask A. Fact Sheets and White Papers
Subtask B. Visual Media
Subtask C. Case Studies

TASK 5 – Information Quality Review

The contractor shall prepare and update as necessary the Information Quality Guidelines Checklist for Influential Information, along with supporting information. This checklist is described by the Office of Water Information Quality Guidelines: Pre-Dissemination Review Guidance and Checklists, Attachment B.

TASK 6 - Assist with Communication and Outreach

The contractor shall assist with efforts to communicate information about water quality standards-related actions to the public and key stakeholders. This includes development of communication strategies that identify target audiences, messages to reach those audiences, and products appropriate for each audience, in addition to identifying distribution mechanisms, and evaluating outreach efforts.

VII. SCHEDULE OF BENCHMARKS & DELIVERABLES:

Task/ Subtask	DELIVERABLE	Schedule

1	**Kickoff Meeting Notes**	Due two business days after Kickoff Meeting
2	**QAPP** **Final Quality Assurance Documentation Report**	Due within five business days after Kickoff Meeting On or before June 30, 2018
3.A.1	**Information Collection**	Within 7 days of written technical direction
3.A.2	**Field Sampling**	Within 14 days of written technical direction
3.B	**Critical Review, Summary Report of State/EPA Information**	Due as requested by the EPA WA-COR via written technical direction
3.C	**Literature Searches, Reviews, Summaries**	Due as requested by the EPA WA-COR via written technical direction
3.D	**Data/Information Analyses**	Due as requested by the EPA WA-COR via written technical direction
3.E	**Critical Review, Summary Report of 3rd Party Information**	Due as requested by the EPA WA-COR via written technical direction
3.F	**Technical and Analytical Work Supporting WQSITS, WATA, and the WQS Repository**	Due as requested by the EPA WA-COR via written technical direction
4	**Presentations and Follow-up Materials**	Due as requested by the EPA WA-COR via written technical direction
5	**Information Quality Guidelines Checklist**	Due as requested by the EPA WA-COR via written technical direction
6	**Communication Strategies**	Due as requested by the EPA WA-COR via written technical direction

Draft written deliverable(s) for review by the EPA WA-COR shall be prepared in accordance with the written Technical Direction provided by the WACOR and submitted in accordance with the Work Assignment Schedule of Benchmarks and Deliverables.

Final written deliverable(s) shall be prepared in accordance with the written Technical Direction provided by the EPA WA-COR and submitted in accordance with the schedule in the WA Schedule of Benchmarks and Deliverables, after any written comments are received from the EPA WA-COR. All final deliverables will be compliant, as appropriate, with section 508 of the Rehabilitation Act of 1973, as amended.

TRAVEL: Some travel is anticipated under this work assignment. For cost estimate purposes, assume three one-day trips for one person from contractor location to any site nationwide (use trip to Florida to generate estimate) as identified by the EPA WA-COR, with site visit schedules arranged to minimize travel time. All travel under this WA shall be in compliance with contract requirements.

PRINTING

All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

CONTRACTOR IDENTIFICATION

Contractor personnel shall clearly identify corporate affiliation at the start of any meeting or training workshop. While attending EPA-sponsored meetings, conferences, symposia, etc., or while on a Government site, Contractor personnel shall wear a badge that identifies the individual as a contractor employee. Contractor personnel are strictly prohibited from acting as a representative of the Agency meetings, conferences, symposia, etc.

MEETINGS, CONFERENCES, TRANINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than $20,000, shall be obtained by the EPA CL COR as needed and provided to the Contracting Officer. Work under conference-related activities and expenses shall not occur until this approval is obtained and provided by the EPA CL COR.

VII. ATTACHMENTS:

Attachment A:	General WA Background Information
Attachment B:	Office of Water Information Quality Guidelines: Pre-Dissemination Review Guidance and Checklists

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-03

☐ Other ☒ Amendment Number: 000003

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Quick Turnaround

Contractor: TETRA TECH, INC.

Specify Section and paragraph of Contract SOW:

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 07/12/2017 To 06/30/2018

Comments:
The purpose of this Amendment is to increase in the level of effort with an additional 213 hours. The funding increase is not associated with any new tasks but rather an increase in the support needed on all tasks.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 08/05/2014 To 06/30/2018		3,335
This Action:		213
Total:		3,548

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Julianne McLaughlin (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-2542
	FAX Number:	
Project Officer Name: Tanyan Bailey (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-564-3133
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2002
	FAX Number:	

PERFORMANCE WORK STATEMENT
EPA Contract EP-C-14-016
Work Assignment 3-03, Amendment 3

I. TITLE: Technical Support for EPA Rulemakings, Determinations and Other Water Quality Standards-Related Actions

II. WORK ASSIGNMENT CONTRACTING OFFICER REPRESENTATIVE (WACOR):

Julianne McLaughlin
U.S. EPA, Office of Water
1200 Pennsylvania Ave., N.W., 4305T
Washington, DC 20460
Phone: (202) 566-2542
E-mail: mclaughlin.julianne@epa.gov

ALTERNATE WACOR :

Thomas Gardner
U.S. EPA, Office of Water
1200 Pennsylvania Ave., N.W., 4305T
Washington, DC 20460
Phone: (202) 566-0386
E-mail : gardner.thomas@epa.gov

III. PERFORMANCE PERIOD: July 1, 2017 through June 30, 2018

IV. LEVEL OF EFFORT: **213 Additional Direct Labor Hours**

V. SUPPORTS CONTRACT PWS SECTIONS: 3.2, 3.4, 3.5, 3.6. 3.7, 3.11

VI. BACKGROUND:

This Work Assignment 3-03 is essentially identical to its predecessor Work Assignment 2-03.

EPA's Office of Science and Technology (OST) is responsible for developing sound, scientifically defensible water quality standards, criteria, advisories, guidelines, limitations and standards guidelines under the Clean Water Act (CWA). Water quality standards define the water quality goals of a water body by designating uses, setting criteria to protect those uses and establishing provisions to protect water bodies from pollutants.

Section 303 of the CWA requires states and authorized tribes to adopt water quality standards for waters of the United States within their jurisdictions. The CWA further requires states to submit these water quality standards for EPA approval and EPA must then take action within certain regulatory deadlines. Section 303(c) of the CWA directs the Administrator to promulgate water quality standards to supersede state standards that have been disapproved, or in any case where

the Administrator determines that a new or revised standard is needed to meet the CWA's requirements. This is known as a "Federal Promulgation" or an "Agency Rulemaking". The CWA also gives EPA the authority to act on existing state water quality standards that have been previously approved by EPA if EPA identifies a provision(s) that is not consistent with the CWA. This is known as an "Administrator Finding", "Administrator Determination" or "CWA Section 303(c)(4)(B) Determination". EPA always conducts in-depth and issue-specific technical research and analysis in order to reach its conclusions.

This Work Assignment will perform a variety of specific subtasks to support the Water Quality Standards Program at EPA. The WACOR will fill in the specific details of the general description of work or documentation items through technical direction to the Contractor. Additional background and more details regarding the Work Assignment are provided under the individual task descriptions.

The purpose of this Amendment is to increase funding to the work assignment to cover an increase in the level of effort with an additional 213 hours. The funding increase is not associated with any new tasks but rather an increase in the support needed on all tasks.

VI. TASKS

TASK 1 – Kickoff Meeting

The contractor shall participate in a Work Assignment (WA) kickoff meeting with EPA staff via conference call within five days of WA award. The purpose of the kickoff meeting is to discuss and clarify expectations, answer any questions, and identify and resolve any potential problems. The purpose of the kickoff meeting is not to change any terms and conditions of the WA. Any change to the WA that results from the kickoff meeting shall be made only by a contract modification executed by the Contracting Officer. Kickoff meeting participants shall not take action that in any way alters the WA. The contractor shall provide notes from the Kickoff meeting to the Work Assignment COR (WA-COR) within two business days.

Given that the specific details for subtasks within each task will be provided through future written technical direction from the EPA WA-COR, the kick-off meeting will include discussion of the key staff who could be involved in the individual tasks, any specific expertise they could provide to the types of work described in each task plus examples of specific projects that are similar in topic area and scope to those described under each task. Additional details on the technical expertise required for each task are provided under the individual task descriptions.

TASK 2 – Quality Assurance

Subtasks in this WA may require the use of primary and/or secondary data and shall be implemented in accordance with an approved quality assurance project plan (QAPP). As the tasks for this WA are essentially the same as those in WA 2-03 and WA 3-03, the contractor shall use the approved QAPP developed for that WA and shall assure that the quality of the

primary or secondary data and analyses are accurate and correct. If needed, the contractor shall hold a conference call with the EPA WA-COR prior to submission of the QAPP to discuss any issues needing clarification.

For each final deliverable, the contractor shall provide a statement that all QA procedures were followed, and a statement describing any needed changes to those procedures, if necessary. The contractor shall also prepare a quality assurance documentation report when all work is finished under this WA.

TASK 3 – Provide Technical Support

Background: Given the complexity of water quality standards development and implementation and the Agency's associated regulatory and often court-imposed deadlines, EPA often finds itself in the position of quickly needing to conduct complex analyses in order to promulgate federal water quality standards, make an Administrator determination, or take some other water quality standards-related action. Data collection and analysis is a necessary component of the technical preparation for such actions. In quick order, the extent of a problem needs to be understood, including waters affected, available monitoring data, impairment information, Total Maximum Daily Loads (TMDLs), permits, applicable state standards and state requirements in place for point source and nonpoint source control, for example.

Examples of past federal promulgations include EPA's 2003 promulgation in Kansas of water quality standards for 1,288 lakes and streams, EPA's establishment of federal bacteria criteria in 2004 for those states and territories with Great Lakes or coastal recreational waters that had not yet adopted standards in accordance with the Beach Act of 2000, and EPA's recent Florida Inland Waters Rule. Examples of past Agency determinations include EPA's 2009 decision that new or revised water quality standards were needed for the area of the Mississippi River around St. Louis and EPA's 2009 determination that new or revised nutrient standards were needed in the state of Florida. Other water quality standards-related actions have included complex state approvals or disapprovals, or responding to a water quality standards-related petition, notice of intended action (NOI) or lawsuit. In all of the aforementioned cases, EPA conducted in-depth and issue-specific technical research and analysis in order to reach its final conclusions.

Task Description: The contractor shall provide the kind of technical support described above, over the remainder of the 2017 calendar year and into 2018. The technical support shall assist the efforts of EPA Headquarters, EPA Regions, States or Tribes as outlined in the following subtasks:

Subtask A. Collect and summarize information.

A.1 From data sources on water quality standards, recreational uses, permits, effluent monitoring data, ambient monitoring data, effluent guidelines, 303D listings, TMDL development, industry and municipality profile information and other data as appropriate.

A.2 Field sampling. Provide technical support for performing field sampling for water quality data, flow conditions, water levels, velocity and physical conditions of a water body.

Subtask B: Provide critical review and summary reports of water quality criteria, standards, TMDLs and permits (including any related support documentation) developed, revised or modified by EPA, States/Tribes;

Subtask C: Conduct limited literature searches, reviews and summaries to inform or assist in developing, revising or taking action on water quality criteria or standards by EPA, States, or Tribes; often with quick response required;

Subtask D: Prepare analyses of data and information to inform or assist in developing, revising or taking action on water quality criteria or standards by EPA, States/Tribes; often with quick response required;

Subtask E: Conduct critical review and summary of reports, publications or other analyses developed by State/Tribes, the regulated community, non-governmental organizations, or other third parties focused on water quality criteria, standards and permits; often with quick response required.

Subtask F: Provide technical and analytical support regarding the data and other information in the WQS Information and Tracking System, including its components such as WATA and the WQS Repository.

The EPA WA-COR will provide the specific details of the technical support needed through written technical direction to the contractor.

Technical Expertise Required:

The key technical individual(s) who work on this work assignment shall have an expert working knowledge of EPA's water quality standards program, including EPA's existing 304(a) criteria (for protection of aquatic life and human health). Furthermore, the key technical individual(s) must have working knowledge of the various additional guidances and approaches EPA has developed for modifying/implementing the water quality standards program, as well as experience and/or working knowledge of the following websites and databases:

- EPA's WQS Repository: www.epa.gov/waterscience/standards/wqslibrary/
- The Antidegradation Clearinghouse: http://www.epa.gov/waterscience/antideg/antidegclear/index.html
- IRIS: http://epa.gov/iris/
- STORET: http://www.epa.gov/storet/
- USGS Monitoring Data Websites
- Dflow: http://www.epa.gov/waterscience/models/dflow/
- CORMIX for Mixing Zones: http://www.epa.gov/waterscience/models/cormix.html

- Permits Compliance System (PCS) Database and the ICIS-NPDES (Integrated Compliance Information System – National Pollutant Discharge Elimination System):
- http://www.epa.gov/enviro/facts/pcs-icis/search.html
- State-specific water quality standards, permits and 303(d) listing and TMDL websites/databases
- GIS systems in order to spatially lay out information on mixing zones, permittees, environmental justice, land use, etc.
- Discharge Monitoring Report (DMR) Pollutant Loading Tool: www.epa.gov/pollutantdischarges

TASK 4 – Provide Summary Reports and Presentations

Background: Pre-decisional processes require the collection and analysis of in-depth and issue-specific technical research and analysis. The information is often needed in a summarized format to give progress updates to internal management.

Task Description: The contractor shall provide a variety of summary materials for the purpose of presenting information to and briefing internal management. Given the case-specific nature of these requests, additional details/information regarding what these deliverables will be provided via written technical direction.

Subtask A. Fact Sheets and White Papers
Subtask B. Visual Media
Subtask C. Case Studies

TASK 5 – Information Quality Review

The contractor shall prepare and update as necessary the Information Quality Guidelines Checklist for Influential Information, along with supporting information. This checklist is described by the Office of Water Information Quality Guidelines: Pre-Dissemination Review Guidance and Checklists, Attachment B.

TASK 6 - Assist with Communication and Outreach

The contractor shall assist with efforts to communicate information about water quality standards-related actions to the public and key stakeholders. This includes development of communication strategies that identify target audiences, messages to reach those audiences, and products appropriate for each audience, in addition to identifying distribution mechanisms, and evaluating outreach efforts.

VII. SCHEDULE OF BENCHMARKS & DELIVERABLES:

Task/ Subtask	DELIVERABLE	Schedule

1	**Kickoff Meeting Notes**	Due two business days after Kickoff Meeting
2	**QAPP** **Final Quality Assurance Documentation Report**	Due within five business days after Kickoff Meeting On or before June 30, 2018
3.A.1	**Information Collection**	Within 7 days of written technical direction
3.A.2	**Field Sampling**	Within 14 days of written technical direction
3.B	**Critical Review, Summary Report of State/EPA Information**	Due as requested by the EPA WA-COR via written technical direction
3.C	**Literature Searches, Reviews, Summaries**	Due as requested by the EPA WA-COR via written technical direction
3.D	**Data/Information Analyses**	Due as requested by the EPA WA-COR via written technical direction
3.E	**Critical Review, Summary Report of 3rd Party Information**	Due as requested by the EPA WA-COR via written technical direction
3.F	**Technical and Analytical Work Supporting WQSITS, WATA, and the WQS Repository**	Due as requested by the EPA WA-COR via written technical direction
4	**Presentations and Follow-up Materials**	Due as requested by the EPA WA-COR via written technical direction
5	**Information Quality Guidelines Checklist**	Due as requested by the EPA WA-COR via written technical direction
6	**Communication Strategies**	Due as requested by the EPA WA-COR via written technical direction

Draft written deliverable(s) for review by the EPA WA-COR shall be prepared in accordance with the written Technical Direction provided by the WACOR and submitted in accordance with the Work Assignment Schedule of Benchmarks and Deliverables.

Final written deliverable(s) shall be prepared in accordance with the written Technical Direction provided by the EPA WA-COR and submitted in accordance with the schedule in the WA Schedule of Benchmarks and Deliverables, after any written comments are received from the EPA WA-COR. All final deliverables will be compliant, as appropriate, with section 508 of the Rehabilitation Act of 1973, as amended.

TRAVEL: Some travel is anticipated under this work assignment. For cost estimate purposes, assume three one-day trips for one person from contractor location to any site nationwide (use trip to Florida to generate estimate) as identified by the EPA WA-COR, with site visit schedules arranged to minimize travel time. All travel under this WA shall be in compliance with contract requirements.

PRINTING

All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

CONTRACTOR IDENTIFICATION

Contractor personnel shall clearly identify corporate affiliation at the start of any meeting or training workshop. While attending EPA-sponsored meetings, conferences, symposia, etc., or while on a Government site, Contractor personnel shall wear a badge that identifies the individual as a contractor employee. Contractor personnel are strictly prohibited from acting as a representative of the Agency meetings, conferences, symposia, etc.

MEETINGS, CONFERENCES, TRANINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than $20,000, shall be obtained by the EPA CL COR as needed and provided to the Contracting Officer. Work under conference-related activities and expenses shall not occur until this approval is obtained and provided by the EPA CL COR.

VII. ATTACHMENTS:

Attachment A:	General WA Background Information
Attachment B:	Office of Water Information Quality Guidelines: Pre-Dissemination Review Guidance and Checklists

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-03

☐ Other ☒ Amendment Number: 000004

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Technical Support for EPA

Contractor	Specify Section and paragraph of Contract SOW
TETRA TECH, INC.	3,2, 3.4, 3.5, 3.6, 3.7

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 07/12/2017 To 06/30/2018

Comments:
The purpose of this amendment is to decrease the LOE by 213 Direct Labor Hours, per the Work Plan submitted in response to Amendment 2.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 08/05/2014 To 06/30/2018		3,548
This Action:		-213
Total:		3,335

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name: Julianne McLaughlin (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-2542
	FAX Number:	
Project Officer Name: Tanyan Bailey (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-564-3133
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2002
	FAX Number:	

PERFORMANCE WORK STATEMENT
EPA Contract EP-C-14-016
Work Assignment 3-03, Amendment 4

I. TITLE: Technical Support for EPA Rulemakings, Determinations and Other Water Quality Standards-Related Actions

II. WORK ASSIGNMENT CONTRACTING OFFICER REPRESENTATIVE (WACOR):

Julianne McLaughlin
U.S. EPA, Office of Water
1200 Pennsylvania Ave., N.W., 4305T
Washington, DC 20460
Phone: (202) 566-2542
E-mail: mclaughlin.julianne@epa.gov

ALTERNATE WACOR :

Thomas Gardner
U.S. EPA, Office of Water
1200 Pennsylvania Ave., N.W., 4305T
Washington, DC 20460
Phone: (202) 566-0386
E-mail : gardner.thomas@epa.gov

III. PERFORMANCE PERIOD: July 1, 2017 through June 30, 2018

IV. LEVEL OF EFFORT: **3335 (Decrease 213 Direct Labor Hours)**

V. SUPPORTS CONTRACT PWS SECTIONS: 3.2, 3.4, 3.5, 3.6. 3.7, 3.11

VI. BACKGROUND:

This Work Assignment 3-03 is essentially identical to its predecessor Work Assignment 2-03.

EPA's Office of Science and Technology (OST) is responsible for developing sound, scientifically defensible water quality standards, criteria, advisories, guidelines, limitations and standards guidelines under the Clean Water Act (CWA). Water quality standards define the water quality goals of a water body by designating uses, setting criteria to protect those uses and establishing provisions to protect water bodies from pollutants.

Section 303 of the CWA requires states and authorized tribes to adopt water quality standards for waters of the United States within their jurisdictions. The CWA further requires states to submit these water quality standards for EPA approval and EPA must then take action within certain regulatory deadlines. Section 303(c) of the CWA directs the Administrator to promulgate water quality standards to supersede state standards that have been disapproved, or in any case where

the Administrator determines that a new or revised standard is needed to meet the CWA's requirements. This is known as a "Federal Promulgation" or an "Agency Rulemaking". The CWA also gives EPA the authority to act on existing state water quality standards that have been previously approved by EPA if EPA identifies a provision(s) that is not consistent with the CWA. This is known as an "Administrator Finding", "Administrator Determination" or "CWA Section 303(c)(4)(B) Determination". EPA always conducts in-depth and issue-specific technical research and analysis in order to reach its conclusions.

This Work Assignment will perform a variety of specific subtasks to support the Water Quality Standards Program at EPA. The WACOR will fill in the specific details of the general description of work or documentation items through technical direction to the Contractor. Additional background and more details regarding the Work Assignment are provided under the individual task descriptions.

The purpose of this Amendment is to decrease funding to the work assignment to cover a decrease in the level of effort by 213 hours.

VI. TASKS

TASK 1 – Kickoff Meeting

The contractor shall participate in a Work Assignment (WA) kickoff meeting with EPA staff via conference call within five days of WA award. The purpose of the kickoff meeting is to discuss and clarify expectations, answer any questions, and identify and resolve any potential problems. The purpose of the kickoff meeting is not to change any terms and conditions of the WA. Any change to the WA that results from the kickoff meeting shall be made only by a contract modification executed by the Contracting Officer. Kickoff meeting participants shall not take action that in any way alters the WA. The contractor shall provide notes from the Kickoff meeting to the Work Assignment COR (WA-COR) within two business days.

Given that the specific details for subtasks within each task will be provided through future written technical direction from the EPA WA-COR, the kick-off meeting will include discussion of the key staff who could be involved in the individual tasks, any specific expertise they could provide to the types of work described in each task plus examples of specific projects that are similar in topic area and scope to those described under each task. Additional details on the technical expertise required for each task are provided under the individual task descriptions.

TASK 2 – Quality Assurance

Subtasks in this WA may require the use of primary and/or secondary data and shall be implemented in accordance with an approved quality assurance project plan (QAPP). As the tasks for this WA are essentially the same as those in WA 2-03 and WA 3-03, the contractor shall use the approved QAPP developed for that WA and shall assure that the quality of the

primary or secondary data and analyses are accurate and correct. If needed, the contractor shall hold a conference call with the EPA WA-COR prior to submission of the QAPP to discuss any issues needing clarification.

For each final deliverable, the contractor shall provide a statement that all QA procedures were followed, and a statement describing any needed changes to those procedures, if necessary. The contractor shall also prepare a quality assurance documentation report when all work is finished under this WA.

TASK 3 – Provide Technical Support

Background: Given the complexity of water quality standards development and implementation and the Agency's associated regulatory and often court-imposed deadlines, EPA often finds itself in the position of quickly needing to conduct complex analyses in order to promulgate federal water quality standards, make an Administrator determination, or take some other water quality standards-related action. Data collection and analysis is a necessary component of the technical preparation for such actions. In quick order, the extent of a problem needs to be understood, including waters affected, available monitoring data, impairment information, Total Maximum Daily Loads (TMDLs), permits, applicable state standards and state requirements in place for point source and nonpoint source control, for example.

Examples of past federal promulgations include EPA's 2003 promulgation in Kansas of water quality standards for 1,288 lakes and streams, EPA's establishment of federal bacteria criteria in 2004 for those states and territories with Great Lakes or coastal recreational waters that had not yet adopted standards in accordance with the Beach Act of 2000, and EPA's recent Florida Inland Waters Rule. Examples of past Agency determinations include EPA's 2009 decision that new or revised water quality standards were needed for the area of the Mississippi River around St. Louis and EPA's 2009 determination that new or revised nutrient standards were needed in the state of Florida. Other water quality standards-related actions have included complex state approvals or disapprovals, or responding to a water quality standards-related petition, notice of intended action (NOI) or lawsuit. In all of the aforementioned cases, EPA conducted in-depth and issue-specific technical research and analysis in order to reach its final conclusions.

Task Description: The contractor shall provide the kind of technical support described above, over the remainder of the 2017 calendar year and into 2018. The technical support shall assist the efforts of EPA Headquarters, EPA Regions, States or Tribes as outlined in the following subtasks:

Subtask A. Collect and summarize information.

A.1 From data sources on water quality standards, recreational uses, permits, effluent monitoring data, ambient monitoring data, effluent guidelines, 303D listings, TMDL development, industry and municipality profile information and other data as appropriate.

A.2 Field sampling. Provide technical support for performing field sampling for water quality data, flow conditions, water levels, velocity and physical conditions of a water body.

Subtask B: Provide critical review and summary reports of water quality criteria, standards, TMDLs and permits (including any related support documentation) developed, revised or modified by EPA, States/Tribes;

Subtask C: Conduct limited literature searches, reviews and summaries to inform or assist in developing, revising or taking action on water quality criteria or standards by EPA, States, or Tribes; often with quick response required;

Subtask D: Prepare analyses of data and information to inform or assist in developing, revising or taking action on water quality criteria or standards by EPA, States/Tribes; often with quick response required;

Subtask E: Conduct critical review and summary of reports, publications or other analyses developed by State/Tribes, the regulated community, non-governmental organizations, or other third parties focused on water quality criteria, standards and permits; often with quick response required.

Subtask F: Provide technical and analytical support regarding the data and other information in the WQS Information and Tracking System, including its components such as WATA and the WQS Repository.

The EPA WA-COR will provide the specific details of the technical support needed through written technical direction to the contractor.

Technical Expertise Required:

The key technical individual(s) who work on this work assignment shall have an expert working knowledge of EPA's water quality standards program, including EPA's existing 304(a) criteria (for protection of aquatic life and human health). Furthermore, the key technical individual(s) must have working knowledge of the various additional guidances and approaches EPA has developed for modifying/implementing the water quality standards program, as well as experience and/or working knowledge of the following websites and databases:

- EPA's WQS Repository: www.epa.gov/waterscience/standards/wqslibrary/
- The Antidegradation Clearinghouse: http://www.epa.gov/waterscience/antideg/antidegclear/index.html
- IRIS: http://epa.gov/iris/
- STORET: http://www.epa.gov/storet/
- USGS Monitoring Data Websites
- Dflow: http://www.epa.gov/waterscience/models/dflow/
- CORMIX for Mixing Zones: http://www.epa.gov/waterscience/models/cormix.html

- Permits Compliance System (PCS) Database and the ICIS-NPDES (Integrated Compliance Information System – National Pollutant Discharge Elimination System):
- http://www.epa.gov/enviro/facts/pcs-icis/search.html
- State-specific water quality standards, permits and 303(d) listing and TMDL websites/databases
- GIS systems in order to spatially lay out information on mixing zones, permittees, environmental justice, land use, etc.
- Discharge Monitoring Report (DMR) Pollutant Loading Tool: www.epa.gov/pollutantdischarges

TASK 4 – Provide Summary Reports and Presentations

Background: Pre-decisional processes require the collection and analysis of in-depth and issue-specific technical research and analysis. The information is often needed in a summarized format to give progress updates to internal management.

Task Description: The contractor shall provide a variety of summary materials for the purpose of presenting information to and briefing internal management. Given the case-specific nature of these requests, additional details/information regarding what these deliverables will be provided via written technical direction.

Subtask A. Fact Sheets and White Papers
Subtask B. Visual Media
Subtask C. Case Studies

TASK 5 – Information Quality Review

The contractor shall prepare and update as necessary the Information Quality Guidelines Checklist for Influential Information, along with supporting information. This checklist is described by the Office of Water Information Quality Guidelines: Pre-Dissemination Review Guidance and Checklists, Attachment B.

TASK 6 - Assist with Communication and Outreach

The contractor shall assist with efforts to communicate information about water quality standards-related actions to the public and key stakeholders. This includes development of communication strategies that identify target audiences, messages to reach those audiences, and products appropriate for each audience, in addition to identifying distribution mechanisms, and evaluating outreach efforts.

VII. SCHEDULE OF BENCHMARKS & DELIVERABLES:

Task/ Subtask	DELIVERABLE	Schedule

1	**Kickoff Meeting Notes**	Due two business days after Kickoff Meeting
2	**QAPP** **Final Quality Assurance Documentation Report**	Due within five business days after Kickoff Meeting On or before June 30, 2018
3.A.1	**Information Collection**	Within 7 days of written technical direction
3.A.2	**Field Sampling**	Within 14 days of written technical direction
3.B	**Critical Review, Summary Report of State/EPA Information**	Due as requested by the EPA WA-COR via written technical direction
3.C	**Literature Searches, Reviews, Summaries**	Due as requested by the EPA WA-COR via written technical direction
3.D	**Data/Information Analyses**	Due as requested by the EPA WA-COR via written technical direction
3.E	**Critical Review, Summary Report of 3rd Party Information**	Due as requested by the EPA WA-COR via written technical direction
3.F	**Technical and Analytical Work Supporting WQSITS, WATA, and the WQS Repository**	Due as requested by the EPA WA-COR via written technical direction
4	**Presentations and Follow-up Materials**	Due as requested by the EPA WA-COR via written technical direction
5	**Information Quality Guidelines Checklist**	Due as requested by the EPA WA-COR via written technical direction
6	**Communication Strategies**	Due as requested by the EPA WA-COR via written technical direction

Draft written deliverable(s) for review by the EPA WA-COR shall be prepared in accordance with the written Technical Direction provided by the WACOR and submitted in accordance with the Work Assignment Schedule of Benchmarks and Deliverables.

Final written deliverable(s) shall be prepared in accordance with the written Technical Direction provided by the EPA WA-COR and submitted in accordance with the schedule in the WA Schedule of Benchmarks and Deliverables, after any written comments are received from the EPA WA-COR. All final deliverables will be compliant, as appropriate, with section 508 of the Rehabilitation Act of 1973, as amended.

TRAVEL: Some travel is anticipated under this work assignment. For cost estimate purposes, assume three one-day trips for one person from contractor location to any site nationwide (use trip to Florida to generate estimate) as identified by the EPA WA-COR, with site visit schedules arranged to minimize travel time. All travel under this WA shall be in compliance with contract requirements.

PRINTING

All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

CONTRACTOR IDENTIFICATION

Contractor personnel shall clearly identify corporate affiliation at the start of any meeting or training workshop. While attending EPA-sponsored meetings, conferences, symposia, etc., or while on a Government site, Contractor personnel shall wear a badge that identifies the individual as a contractor employee. Contractor personnel are strictly prohibited from acting as a representative of the Agency meetings, conferences, symposia, etc.

MEETINGS, CONFERENCES, TRANINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than $20,000, shall be obtained by the EPA CL COR as needed and provided to the Contracting Officer. Work under conference-related activities and expenses shall not occur until this approval is obtained and provided by the EPA CL COR.

VII. ATTACHMENTS:

Attachment A:	General WA Background Information
Attachment B:	Office of Water Information Quality Guidelines: Pre-Dissemination Review Guidance and Checklists

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-03

☐ Other ☒ Amendment Number: 000005

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Technical Support for EPA Rule

Contractor: TETRA TECH, INC.

Specify Section and paragraph of Contract SOW:

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 07/12/2017 To 06/30/2018

Comments:
The current correct LOE for this amendment should be an addition of 262. There is no change in the PWS.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 08/05/2014 To 06/30/2018		3,335
This Action:		262
Total:		3,597

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Julianne McLaughlin (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 202-566-2542	
	FAX Number:	
Project Officer Name: Tanyan Bailey (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 202-564-3133	
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 513-487-2002	
	FAX Number:	

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-09

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Maintenance of WQSITS Data

Contractor	Specify Section and paragraph of Contract SOW
TETRA TECH, INC.	3.5, 3.12

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/14/2017 To 06/30/2018

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 08/05/2014 To 06/30/2018		0
This Action:		555
Total:		555

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Gregory Stapleton	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1028 FAX Number:
Project Officer Name: Thomas Gardner	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-0386 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Courtney Stallworth	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2002 FAX Number:

PERFORMANCE WORK STATEMENT
Contract #EP-C-14-016
Work Assignment #3-09

Title:	**Maintenance of WQSITS Data**
Work Assignment COR:	Gregory Stapleton Mail Code 4303T Standards and Health Protection Division (SHPD) Office of Science and Technology (OST) Office of Water (OW) (202) 566-1028 stapleton.gregory@epa.gov
Period of Performance:	Date of Issuance through June 30, 2018
Estimated LOE:	555 Hours

I. Background

The Water Quality Standards Information and Tracking System (WQSITS) project focuses on maintaining information to help the Water Quality Standards (WQS) Program run efficiently. This information covers both publicly-available information and EPA-only resources.

EPA's website *State-Specific Water Quality Standards Effective under the Clean Water Act* is one of the focus areas of work described here. EPA established this website – also known as "the Repository" – over a decade ago related to its commitments under the Alaska Rule. The Repository contains a page for each state, authorized tribe, and territory that identifies WQS that EPA has approved or are otherwise in effect for Clean Water Act purposes. The Repository also complements other EPA websites such as those promoting WQS for wetlands and development of nutrient WQS.

In 2015 under the OneEPA web initiative, the Repository started to evolve into a state-specific focal point for "all matters WQS". For example, a state page can now include announcements for hearings and requests for comments related to WQS promulgations. Approval letters and variance listings have also been included on state pages. Content included on each state page will continue to evolve.

The *WQS Actions Tracking Application (WATA)* is another key area of the WQSITS project. Unlike the website described above, WATA is an EPA-only tool. It helps track and manage review of WQS submissions from state and notifies key personnel of submission related events (e.g., new submissions, submission approvals, etc.); WATA also triggers updates to the Repository. WATA has been particularly useful in responding to Freedom of Information Act (FOIA) requests because it contains documents that support WQS submissions and other information.

II. TASKS consist of 2 Areas: A - Standard and Administrative, B – WQSITS Support Tasks.

A. Standard and Administrative

- ***Task 0001 – Work Plan.*** The contractor shall develop a work plan to address the tasks within this work assignment. Estimates shall be broken-down by task. Additionally, estimates shall show anticipated monthly expenditures (i.e., technical labor hours and costs).

- ***Task 0002 - Quality Assurance.*** The contractor shall update the quality assurance project plan (QAPP) for WQSITS as required by written technical direction. The QAPP describes how the contractor shall verify that information provided on the websites is accurate and correct. The QAPP also discusses how the contractor shall track efforts for assuring that materials received from EPA, other federal agencies, states, tribes, and other entities are correctly incorporated onto the websites.

  The contractor shall also prepare a quality assurance documentation report when work is finished for this work assignment. This report shall document how the contractor assured that information provided on the websites is accurate and correct.

  Finally, the contractor shall prepare (and update as necessary) the *Information Quality Guidelines Checklist for Influential Information,* along with supporting information. This checklist is described by *Office of Water Information Quality Guidelines: Pre-Dissemination Review Guidance and Checklists*; this document is attached at the end of this work assignment.

- ***Task 0003 - Progress Reports.*** The contractor shall prepare monthly progress reports. Each progress report shall concisely summarize the month's accomplishments and difficulties and anticipated activities for the next month. Each progress report shall also identify any issues that need special attention. Additionally, each monthly progress report shall summarize hours and funds expended (both for the reporting period and cumulatively) for each task described below.

B. WQSITS Support Tasks

- ***Task 0004 - Update WQSITS Maintenance Project Standard Operating Procedure.*** The *WQSITS Maintenance Project Standard Operating Procedure (SOP)* describes procedures used to keep the Repository and other information resources current. As needed, the contractor shall update the SOP as described by written technical direction from the WA-COR.

- ***Task 0005 – Maintain WQSITS Data.*** The contractor shall maintain the Repository and its supporting components as described by the WQSITS SOP described above in Task 0004.

  All content for publication on EPA's website shall be 508 compliant.

III. Other Administrative

- **Contractor Identification:** Contractor personnel shall clearly identify corporate affiliation at the start of any meeting. While attending EPA-sponsored meetings, conferences, symposia, etc. or while on a Government site, Contractor personnel shall wear a badge which identifies the individual as a contractor employee. Contractor personnel are strictly prohibited from acting as a representative of the Agency at meetings, conferences, symposia, etc.

- **Travel:** No travel is anticipated under this work assignment.

IV. Schedule of Deliverables:

	Description	Due Dates
Task 0001	Work Plan	Per contract requirements
Task 0002	Quality Assurance Project Plan (QAPP)	30 days after contractor receives work assignment
Task 0002	Quality Assurance Documentation Report	June 30, 2018
Task 0002	Information Quality Guidelines Checklist for Influential Information	As requested by the WA-COR via written technical direction.
Task 0003	Progress Reports	Per contract requirements, all progress reports (when required) are to be provided with monthly invoice submissions.
Task 0004	Update WQSITS Maintenance Standards Operating Procedure	As requested by the WA-COR via written technical direction.
Task 0005	Maintain WQSITS Data	Within two weeks after the contractor is notified an update is needed.

PRINTING

All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

MEETINGS, CONFERENCES, TRANINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than $20,000, shall be obtained by the EPA CL COR as needed and provided to the Contracting Officer. Work under conference-related activities and expenses shall not occur until this approval is obtained and provided by the EPA CL COR.

Office of Water
Information Quality Guidelines:
Pre-Dissemination Review Guidance and Checklists
version 2.3 (September 23, 2010)

BACKGROUND

In order to comply with Section 515 of the Treasury and General Government Appropriations Act for FY 2002 (Public Law 106-554), the Office of Management and Budget developed guidelines that "provide policy and procedural guidance for ensuring and maximizing the quality, objectivity, utility, and integrity of information, including statistical information, disseminated by Federal agencies."

In response to OMB's guidelines (FRL-7157-8, March 2002), EPA developed the *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency* (The EPA IQG Guidelines), which contain EPA's policy and procedural guidance for ensuring and maximizing the quality of the information we disseminate. "Quality" refers to objectivity, integrity, and utility.

The EPA IQG Guidelines also:

Outline administrative mechanisms for EPA pre-dissemination review of information products
Enable affected persons to file complaints regarding disseminated information that they believe to be noncompliant with EPA's IQG Guidelines.

Implementation began ***October 1, 2002***.

For more information, visit http://www.epa.gov/quality/informationguidelines/

In order to ensure that information meets The EPA IQG Guidelines, the following guidance and checklists should be used prior to dissemination.

OVERVIEW

- What information is covered under The EPA IQG Guidelines?
- Is your organization in compliance with EPA's existing Quality System and Office of Water's Quality Management Plan?
- What type of information do I have?
- Do additional guidelines apply for externally gathered data?
- Checklists for Pre-Dissemination Review
- What are Requests for Correction and Requests for Reconsideration, and how does OW respond to them?

WHAT INFORMATION IS COVERED UNDER THE EPA IQG GUIDELINES?

These guidelines apply only to *information* EPA *disseminates* to the public.

What DO The EPA IQG Guidelines cover?

- EPA prepares the information and distributes it to support or represent EPA's viewpoint, or to formulate or support a regulation, guidance, or other Agency decision or position.
- EPA distributes information prepared or submitted by an outside party in a manner that reasonably suggests that EPA endorses or agrees with it.
- EPA reviews and comments on information distributed by an outside party in a manner that indicates EPA is endorsing it, directs the outside party to disseminate it on EPA's behalf, or otherwise adopts or endorses it.

What DON'T The EPA IQG Guidelines cover?

- Distribution of information for government employees
- EPA response to FOIA, FACA, or similar legislation
- Correspondence directed to individuals or persons
- Information presented solely to Congress
- Ephemeral information (press releases, fact sheets, press conferences)
- Background information (published articles distributed by libraries, or other non-EPA endorsed distributions)
- Information distributed by recipients of EPA grants, contracts, or cooperative agreements *unless* EPA adopts or endorses the information
- Information in public filings, including information submitted to EPA, either voluntarily or under mandates/requirements
- Distribution of information in judicial cases or administrative adjudication

IS YOUR ORGANIZATION IN COMPLIANCE WITH EPA'S EXISTING QUALITY SYSTEM AND OFFICE OF WATER'S QUALITY MANAGEMENT PLAN?

Many of EPA's current quality assurance practices fulfill much of EPA's Information Quality Guidelines. Examples of these policies are: Quality System, Peer Review, Action Development Process, Integrated Error Correction Process, Information Resources Management Manual, Risk Characterization Policy and Handbook, Program-Specific Policies, and EPA's Commitment to Continuous Improvement. EPA information disseminated to the pubic must meet EPA's already existing Quality System and other related policies. The Quality System utilizes a graded approach to establish quality criteria that are appropriate for the intended use of the information and the resources available. (The Quality System can be found in EPA Order CIO 2105.0 [formerly 5360.1 A2], "Policy and Program Requirements for the Mandatory Agency-wide Quality System" and in the "EPA Quality Manual".)

The Quality System requires Agency organizations to:

- Assign a quality assurance manager
- Develop a Quality Management Plan
- Conduct an annual assessment of the organization's quality system
- Use a systematic planning process to develop acceptance or performance criteria prior to the initiation of all projects that involve environmental information collection and/or use
- Develop Quality Assurance Project Plans for all applicable projects and tasks involving environmental data
- Conduct an assessment of existing data, when used to support Agency decisions or other secondary purposes, to verify accuracy
- Implement all Agency-wide Quality System components in all applicable EPA-funded extramural agreements
- Provide appropriate training for all levels of management and staff

The Office of Water implements EPA's Quality System through its Quality Management Plan, dated February 2009, and approved by OEI in July 2009. Please refer to this document to ensure that the information you are disseminating complies with Office of Water quality assurance policies.

WHAT TYPE OF INFORMATION DO I HAVE?

Different quality standards apply to influential information, influential scientific risk assessment information, and non-influential information. The definitions of these three types of information are:

Influential: when the Agency can reasonably determine that dissemination of the information will have a clear and substantial impact on important public policies or private sector decisions. These include OMB economically significant actions, peer reviewed documents, top Agency policy documents, and other actions on a case-by-case basis. Influential information must meet a higher standard of quality: "reproducibility".

- Reproducibility: providing enough information to allow the public to reproduce our analyses

Influential Scientific Risk Assessment: applies to all dissemination of information regarding human health, environmental, or safety risk assessments, *except* those conducted under the Safe Drinking Water Act, which will adhere to SDWA principles. Information is required to be accurate, reliable, and unbiased; it should also be comprehensive, informative, and understandable. The quality standard is "objectivity," and uses the following principles:

- Information is accurate, reliable, and unbiased. This involves:
  - Best available science, which utilizes sound and objective scientific practices, and peer review when available
  - Data collection by accepted methods

- Presentation of information is consistent with the purpose of the information, is comprehensive, informative, and understandable. This means specifying:
  - Each population addressed by the risk
  - Expected risk or central estimate
  - Upper-bound and lower-bound estimate of risk
  - Significant uncertainties identified
  - Peer reviewed studies known to the Administrator

Non-Influential: standard of quality is "transparency."

- Transparency: the public can understand how conclusions were obtained on the information

DO ADDITIONAL GUIDELINES APPLY FOR EXTERNALLY GATHERED DATA?

Most external environmental data is within the scope of the Quality System. This includes literature, industry surveys, compilations from computerized databases and information systems, and results from computerized or mathematical models of environmental processes and conditions.

Regarding voluntarily submitted information, EPA will continue to work with States and other governments, the scientific and technical community, and other interested information providers to develop and publish criteria the EPA would use to assess this type of information.

Depending on your information, you need only fill out ONE of the following three checklists. Please forward the checklists to your Division Director for review and signature. The checklist must then be signed by OW's IQG Officer (currently Margarete Heber, 566-1189, heber.margarete@epa.gov) for approval and signature, and a copy of the fully signed checklist must be sent to your Quality Assurance Officer. Please also note that outside entities may file Requests for Correction (i.e. complaints) to EPA, citing non-compliance with EPA's Information Quality Guidelines.

Note: OGWDW staff should send their completed checklists directly to their Division Directors. They should work with the OW IQ Guidelines Officer, as their projects and checklists are being developed.

Office of Water
Information Quality Guidelines Checklist for
Influential Information

Influential Information has or will have a clear and substantial impact on important public policies or private sector decisions. (Includes OMB economically significant actions, peer reviewed documents, top Agency policy documents, and other actions on a case-by-case basis.)

- ☐ The information to be disseminated is covered under The EPA IQG Guidelines.
- ☐ The information is in compliance with EPA's Quality System and other related policies.
- ☐ The information is in compliance with Office of Water's Quality Management Plan.
- ☐ The information is consistent with the OMB definition of "quality," meaning the information has a high level of objectivity, utility, and integrity.
  - ☐ Objectivity: information is presented in an accurate, clear, complete, and unbiased manner, and as a matter of substance, is accurate, reliable, and unbiased.
  - ☐ Integrity: the information cannot be compromised through corruption or falsification because it is secure from unauthorized access or revision.
  - ☐ Utility: the information is useful to the intended users.
- ☐ The information meets "reproducibility" standard. The information and its accompanying documentation has a higher degree of transparency regarding the following:
  - ☐ The source of the data used
  - ☐ The various assumptions employed
  - ☐ The analytic methods applied
  - ☐ The statistical procedures employed

Division Director's Signature & Date

IQG Officer for OW Signature & Date
(Officer signature is not needed for OGWDW staff)

**If your information does not comply with any of these items, please attach brief explanation of any omissions. Please forward a copy of this document to your office's Quality Assurance Officer.

Office of Water
Information Quality Guidelines Checklist for
Influential Risk Assessment Information

Influential Scientific Risk Assessment Information has or will have a clear and substantial impact on important public policies or private sector decisions. (Includes OMB economically significant actions, peer reviewed documents, top Agency policy documents, and other actions on a case-by-case basis.)

- ☐ The information to be disseminated is covered under The EPA IQG Guidelines.
- ☐ The information is in compliance with EPA's Quality System and other related policies.
- ☐ The information is in compliance with Office of Water's Quality Management Plan.
- ☐ The information is consistent with the OMB definition of "quality," meaning the information has a high level of objectivity, utility, and integrity.
  - ☐ Objectivity: information is presented in an accurate, clear, complete, and unbiased manner, and as a matter of substance, is accurate, reliable, and unbiased.
  - ☐ Integrity: the information cannot be compromised through corruption or falsification because it is secure from unauthorized access or revision.
  - ☐ Utility: the information is useful to the intended users.
- ☐ The information meets "objectivity" standard.
  - ☐ The information is accurate, reliable, and unbiased:
    - Best available science and supporting studies conducted using sound and objective scientific practices, including peer reviewed studies
    - Data were collected by accepted methods or best available methods (if the method's reliability nature of the decision justifies the use of the data)
  - ☐ Presentation of information on human health, safety, or environmental risks, consistent with the purpose of the information, is comprehensive, informative, and understandable. Each of the following must be specified:
    - Each population addressed by the risk or each risk assessment endpoint addressed by any estimate of applicable ecological risk
    - Expected risk or central estimate for the specific populations affected or the ecological assessment endpoints
    - Upper-bound and lower-bound estimate of risk
    - Significant uncertainties identified, and studies that would assist in resolving uncertainties
    - Peer reviewed studies known to the Administrator that support, are directly relevant to, or fail to support any estimate of risk and the methodology used to reconcile inconsistencies in the scientific data

Division Director's Signature & Date

IQG Officer for OW Signature & Date
(Officer signature Not needed for OGWDW staff)

**If your information does not comply with any of these items, please attach brief explanation of any omissions. Please forward a copy of this document to your office's Quality Assurance Officer.

Office of Water
Information Quality Guidelines Checklist for
Non-Influential Information

- ☐ The information to be disseminated is covered under The EPA IQG Guidelines.
- ☐ The information is in compliance with EPA's Quality System and other related policies.
- ☐ The information is in compliance with Office of Water's Quality Management Plan.
- ☐ The information is consistent with the OMB definition of "quality," meaning the information has a high level of objectivity, utility, and integrity.
  - ☐ Objectivity: information is presented in an accurate, clear, complete, and unbiased manner, and as a matter of substance, is accurate, reliable, and unbiased.
  - ☐ Integrity: the information cannot be compromised through corruption or falsification because it is secure from unauthorized access or revision.
  - ☐ Utility: the information is useful to the intended users.
- ☐ Meets "transparency" quality standard: the public can understand the source of the information and how conclusions were reached on the information.

_____ _____

Division Director's Signature & Date

IQG Officer for OW Signature & Date
(Officer signature Not needed for OGWDW staff)

**If your information does not comply with any of these items, please attach brief explanation of any omissions. Please forward a copy of this document to your office's Quality Assurance Officer.

Helpful information for Completing OW IQG Checklists

(1) The information is in compliance with EPA's Quality System and other related policies.

Of specific interest:

$ **EPA INFORMATION QUALITY GUIDELINES**

$ **EPA PEER REVIEW POLICY:**
Is this product a major product under the Agency's peer Review Policy? Described in the *Science Policy Council Peer Review Handbook,* the EPA Peer Review Policy regards major scientific and technical work products as those that have a major impact, involve precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review.

If so, has it undergone appropriate peer review? Or, is your AA-ship or Region able to articulate why peer review was not conducted?

$ **EPA QUALITY SYSTEM:**
Does this product present or use environmental data?
- $ If so, did this product complete a **Quality Assurance Project Plan (QAPP)** or equivalent document(s) for all applicable projects and tasks involving environmental data?
- $ Did this product conduct **an assessment of existing data**, when used to support Agency decisions or other secondary purposes, to verify that they are of sufficient quantity and adequate quality for their intended use?

$ **EPA RISK CHARACTERIZATION POLICY AND HANDBOOK, AND OTHER RISK POLICIES**
- $ The EPA Risk Characterization Policy and Handbook provide guidance for risk characterization that is designed to ensure that critical information from each stage of a risk assessment is used in forming conclusions about risk. The Policy calls for a transparent process and products that are clear, consistent and reasonable. The Handbook is designed to provide risk assessors, risk managers, and other decision-makers an understanding of the goals and principles of risk characterization.

(2) Ensuring transparency:
Currently, the EPA IQGs do not describe in great detail how EPA intends to ensure transparency and what exactly transparency consists of but rather state in a general sense EPA's renewed commitment to information transparency for all information products.

The Office of Environmental Information recommends inclusion of the following 5 basic elements in an information product that is being released to the public. This information should be easy to find within a product.

1. Purpose — information products should clearly state the purpose of the product itself. The product should also include a discussion of the intended audience, why the product was created, and an overview of the analysis behind and/or information within the product.

2. Explanation of Potential Uses — information products should provide explanations of how the various types of information and/or analyses presented in the product can used. Each information product should clearly convey why the product was developed (i.e., what its intended use is). This will help users ascertain product quality as it suits their own needs.

3. Product content: Inputs, Methodology, and Outputs — the product should clearly explain to product users the sources of data used to develop the information product (inputs), the scope of the analysis and how the information was put together (methodology), and the information that is made uniquely available through the information product (outputs).

4. Product Limitations and Caveats — a product should clearly state the strengths and weaknesses of the information product, and the accuracy of the source data used for its intended use. In addition, the metadata should also discuss the implications of data quality on the product itself. Furthermore, this where a product developer should be informing the user of the origins of the data and the quality considerations associated with secondary use. The product should describe the difference between why the data was initially collected and how such quality considerations are accommodated in the most recent use by EPA in this new product.

5. Contact information — the information product should explain users with basic contact information. Products should let users know who is responsible for the product and whom they can contact to obtain more information and/or obtain answers to questions they may have on the product or any analyses presented in the product. This is also important in case the user wishes to submit a Request for Correction or later a Request for Reconsideration. The user should be able to tell which Program and/or Region the product came from.

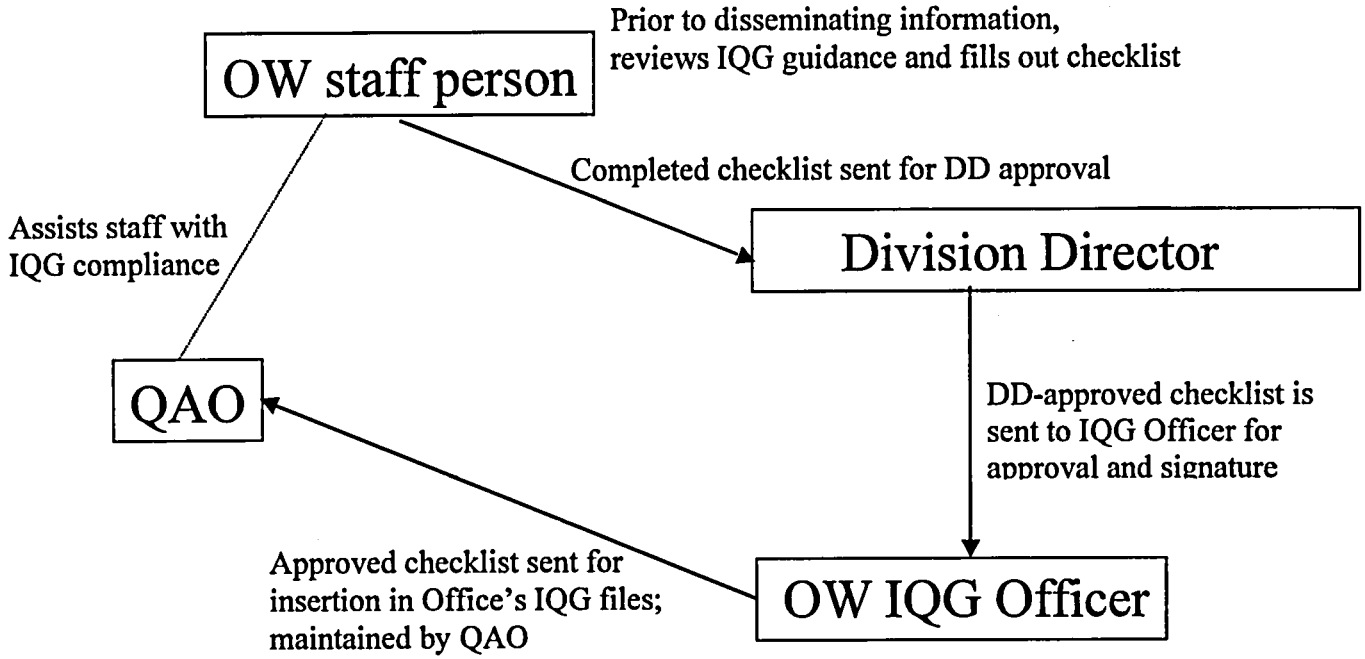
WHAT ARE REQUESTS FOR CORRECTION AND REQUESTS FOR RECONSIDERATION, AND HOW DOES OW RESPOND TO THEM?

The public and outside entities may send complaints to the Office of Environmental Information, stating that EPA information does not comply with OMB's or EPA's Information Quality Guidelines. These complaints are called Requests for Corrections (RFC). These requests should include contact information of the requester, a description of the EPA information in question, an explanation of how the information does not comply with The EPA IQG Guidelines, a recommendation for corrective action, and an explanation of how the alleged error affects or how a correction would benefit the requester.

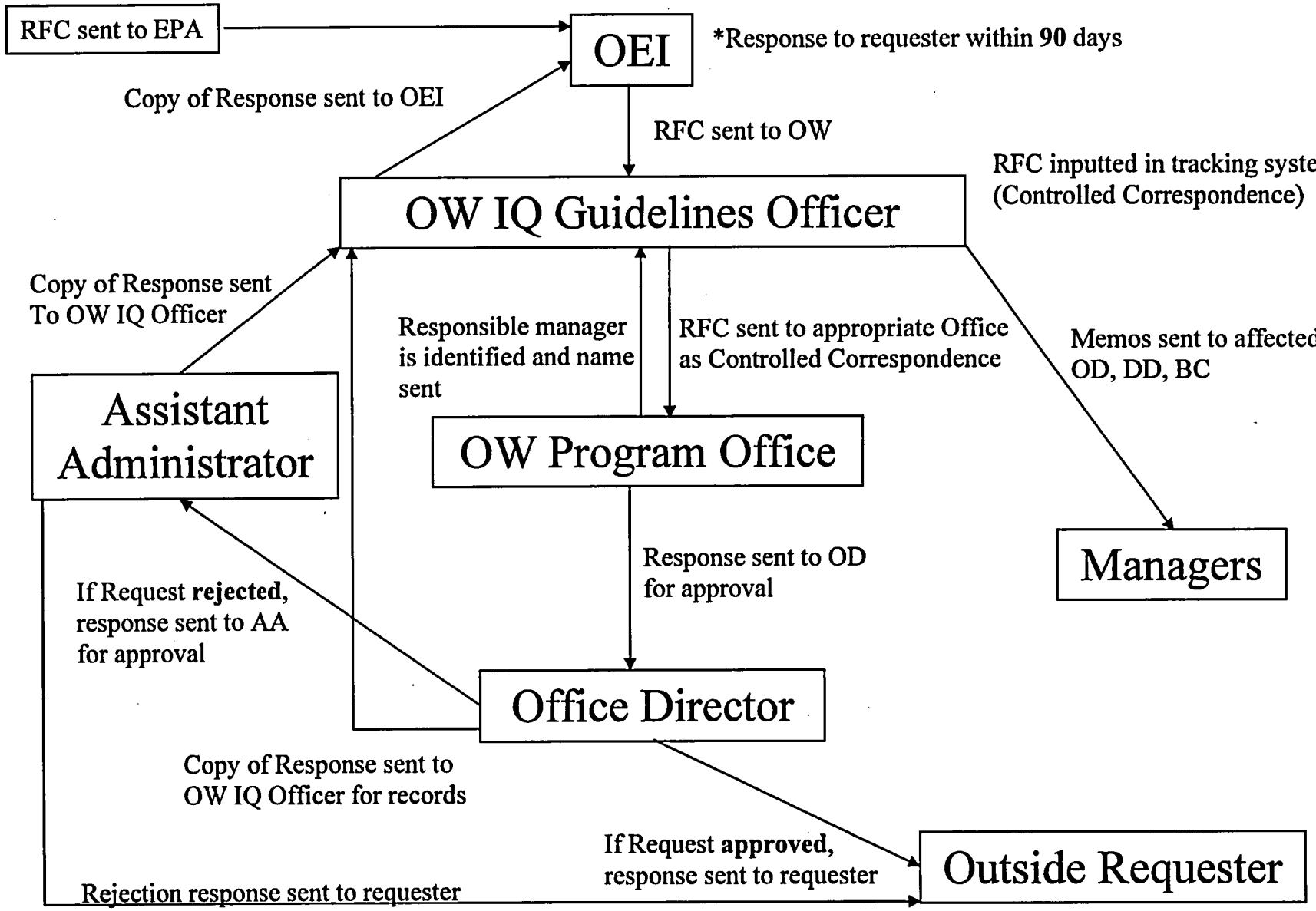
When an RFC is received by OEI, they will send the RFC to OW, if the information in question is under our jurisdiction. OEI will send the RFC to OW's IQ Guidelines Officer, currently Margarete Heber, who will then prepare a controlled correspondence to the Office, who has disseminated the information. In addition, a memo will be sent to managers informing them of the Request. The OW Program Office will be responsible for crafting a response. If the response is an approval, the Office Director may sign the response and send it to the requester of the correction. In addition, a copy should be sent to OW's IQ Guidelines Officer. If the response is a disapproval, the response should be sent to the Assistant Administrator for concurrence on the decision. After AA concurrence, the response will be sent to the outside requester, with a copy to OW's IQ Guidelines Officer. OW has 90 days to respond to requester. If additional time is needed for making a decision on an RFC, OW must send requester a letter informing them that OW is currently processing their request. Please see OW RFC Process Diagram.

If the requester does not agree with the decision by EPA, they have the right to an appeal, officially called a Request for Reconsideration (RFR). The RFR is sent to OEI, who contacts OW. The decision on RFRs are NOT made by OW, but by an executive panel consisting of EPA's Chief Information Officer, Science Advisor, and Economics Advisor. OW will be consulted, prior to any decision. The OW IQ Guidelines Officer will contact all managers and staff affected by the RFR and convene a meeting to discuss OW's stance on the RFR.

OW Pre-Dissemination Review Process



OW Request for Correction (RFC)



version 2.3 (September 23, 2010)

Revision History

Version Number	Version Date	Summary of Changes from Previous Version
2.3	September 23, 2010	▪ Changed the version number to version 2.3 and the date to September 23, 2010 ▪ Updated the webpage citation for OEI's IQG page ▪ Updated references from Leo Gueriguian (former OW IQG Officer) to Margarete Heber (current) OW IQG Officer in the text and eliminated the IQG Officer name from the graphics, so that only the role is shown (consistent with all other roles). ▪ Changed the sequence in the Pre-dissemination review to require the completed checklist to be sent to the Division Director before it is sent to the IQG Officer (rather than the other way around.) ▪ Changed all references from "The Guidelines" to "The EPA IQG Guidelines" to enhance clarity. ▪ Changed an outdated reference to "EPA Order 5360.1 A2" to "CIO 2105.0 (formerly 5360.1 A2)" ▪ Updated the OW QMP reference to indicate that the latest OW QMP was approved by OEI in July 2009 not in September 2001.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-09

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	WQSITS Repository Maintenance

Contractor: TETRA TECH, INC.

Specify Section and paragraph of Contract SOW:

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 08/14/2017 To 06/30/2018

Comments:
The purpose of this amendment is to increase the LOE by 259 hours, per the attached amendment summary.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2): ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 08/05/2014 To 06/30/2018		555
This Action:		259
Total:		814

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Gregory Stapleton (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-1028
	FAX Number:	
Project Officer Name: Tanyan Bailey (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-564-3133
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2002
	FAX Number:	

SCOPE OF WORK
Tetra Tech Contract #EP-C-14-016
Work Assignment #3-09
Amendment #1

Title:	**Maintenance of WQSITS Data**
Work Assignment Manager:	Gregory Stapleton Mail Code 4305T Standards & Health Protection Division (SHPD) Office of Science and Technology (OST) Office of Water (OW) (202) 566-1028 stapleton.gregory@epa.gov
Period of Performance:	Date of Issuance to June 30, 2018
Estimated LOE:	259 hours

Amendment Summary
The original LOE for authorized under the plan for this work assignment was 555 hours with a cost of $56,326. The WQSITS maintenance and tasks (Task 5) required more effort than we initially estimated given information we had before the work assignment started. Additionally, data for the newly-deployed water quality criteria component of WQSITS will need to be updated; this work is also covered under Task 5.

As of February 1, 2018, we estimate approximately 259 more hours will be needed to complete the work assignment tasks through June 30, 2018.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-09

☐ Other ☒ Amendment Number: 000002

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Maintenance of WQSITS Data

Contractor: TETRA TECH, INC.

Specify Section and paragraph of Contract SOW:

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 08/14/2017 To 06/30/2018

Comments:
Danielle Anderson will serve as the alternate work assignment manager for work assignment 3-09.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 08/05/2014 To 06/30/2018 — Cost/Fee: — LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: — Cost/Fee: — LOE:

Cumulative Approved: — Cost/Fee: — LOE:

Work Assignment Manager Name: Gregory Stapleton (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1028 FAX Number:
Project Officer Name: Tanyan Bailey (Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-3133 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2002 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-09

☐ Other ☒ Amendment Number: 000003

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2019 Base Option Period Number 3	Support for the Water Quality

Contractor: TETRA TECH, INC.

Specify Section and paragraph of Contract SOW:

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 08/14/2017 To 06/30/2018

Comments:
The purpose of this amendment is to increase the LOE by 70 Hours. All other terms and conditions remain unchanged.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Contract Period:	Cost/Fee:	LOE:
	08/05/2014 To 06/30/2019		
This Action:			70
Total:			884

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee	LOE:
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name: Gregory Stapleton (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1028 FAX Number:
Project Officer Name: Tanyan Bailey (Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-3133 FAX Number:
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2002 FAX Number:

SCOPE OF WORK
Tetra Tech Contract #EP-C-14-016
Work Assignment #3-09
Amendment #3

Title:	**Support for the Water Quality Standards Information and Tracking System (WQSITS)**
Work Assignment Manager:	Gregory Stapleton Mail Code 4305T Standards & Health Protection Division (SHPD) Office of Science and Technology (OST) Office of Water (OW) (202) 566-1028 fax:(202) 566-1053 e-mail: stapleton.gregory@epa.gov
Period of Performance:	Date of Issuance to June 30, 2012
Estimated LOE:	70 hours (zero cost)

Amendment Summary

The original LOE for authorized under the plan for this work assignment was 555 hours with a cost of $56,326. In February 2018, we increased the LOE 259 hours, adding $26,806 to the cost.

The WQSITS maintenance and tasks (Task 5) required more effort than we initially estimated given the information we had in February - specifically, the data updates for the newly-deployed water quality criteria component of WQSITS.

As of June 20, 2018, we estimate approximately 70 more hours will be needed to complete the work assignment tasks through June 30, 2018. We also estimate no increase in cost - the IGCE is zero.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-15

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Technical Support for Developm

Contractor	Specify Section and paragraph of Contract SOW
TETRA TECH, INC.	3.1, 3.2, 3.3, 3.4, 3.5, 3.10, 3.12, 3.14

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 07/05/2017 To 06/30/2018

Comments:
Technical Support for Development of Human Health and Aquatic Life Water Quality Criteria

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 08/05/2014 To 06/30/2018 — Cost/Fee: — LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: — Cost/Fee — LOE:

Cumulative Approved: — Cost/Fee — LOE:

Work Assignment Manager Name: Shamima Akhter (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-1341
	FAX Number:	
Project Officer Name: Thomas Gardner (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-0386
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2002
	FAX Number:	

PERFORMANCE WORK STATEMENT
Tetra Tech Contract No. EP-C-14-016
Work Assignment # 3-15 (Carry over)

A. TITLE: Technical Support for Development of Human Health and Aquatic Life Water Quality Criteria

B. Work Assignment Contracting Officer Representative (WA-COR)

NAME: Shamima Akhter
TITLE: Microbiologist
PHONE: 202-566-1341
FAX: 202-566-1140
E-MAIL: Akhter.shamima@epa.gov

Alternate Work Assignment Contracting Officer Representative (AWA-COR)

NAME: John Ravenscroft
TITLE: Microbiologist
PHONE: 202-566-1101
FAX: 202-566-1140
E-MAIL: ravenscroft.john@epa.gov

C. PERIOD OF PERFORMANCE: Date of issuance through 06/30/2018

D. TASKS:

TASK 1 – Work plan and monthly progress reports

The contractor shall develop a detail work plan and cost estimate for tasks outlined in this work assignment. The plan shall contain, but not be limited to, work-flowchart, elaborate schedule, staffing plan and qualifications of proposed staff, budget for task and level of effort (LOE). Prior to the submission of the work plan, the contractor shall consult with the EPA WACOR via conference call to mitigate any potential issues that need clarifications. The contractor shall include information on plans to manage work and control contract costs. All P levels, hours and total dollars for tasks shall be provided and costs greater than $100.00 shall be itemized in detail. The contractor shall provide their job number with all invoices to facilitate their expediency. The plan shall be submitted in accordance with the requirements noted in Contract EP-C-14-016.

This task also includes monthly progress and financial reports. The monthly progress report shall indicate, in a separate QA section, whether significant QA issues have been identified and how they are being resolved. Monthly financial reports shall include a table with the invoice LOE and costs broken out by the tasks in this work assignment.

TASK 2 – Quality Assurance

This work assignment requires the use of only existing data. This Quality Assurance Section only applies to Subtask F of Task 3. The tasks in this Performance Work Statement (PWS) require the use of secondary data/analyses, model application and fall under the scope of the approved contract-level quality assurance project plan (QAPP) (EP-C-11-009; WA # 4-60) and the supplemental quality assurance project plan (QAPP) Number 403 (Revision 2) (EP-C-14-016, WA# 1-15), February 16, 2016. Consistent with the Agency's quality assurance (QA) requirements, the contractor shall assure the quality and analyses of the secondary data to be used under this work assignment.

Any additional quality assurance requirements shall be addressed in the work plan and monthly progress reports and, if needed, be covered by a work assignment-specific QAPP supplement, which shall be approved by the EPA WACOR & HECD QAC before activities covered by the additional QA requirements through-out performance of Subtask F of this work assignment.

Subtask F in this WA requires the use of secondary data and shall be implemented in accordance with approved project-specific QAPP (EP-C-11-009; WA # 4-60) and the supplemental quality assurance project plan (QAPP) Number 403 (Revision 2) (EP-C-14-016, WA# 1-15), February 16, 2016 to assure that the quality of the primary or secondary data and analyses (including modeling and statistical analyses) are accurate and correct.

Subtask 2.1: Information Quality Guidelines & Information Quality Review

The contractor shall ensure the products developed under this work assignment comply with EPA's Quality System and other related QA policies, the Office of Water's Quality Management Plan. The contractor shall ensure that the information in the products meets the standards of "Objectivity", "Integrity" , "Utility" , "Reproducibility" and "Transparency" as described in the OW Information Quality Guideline (IQG) for each deliverables from this work assignment as they may be used in Agency decision-making and/or will be publicly available documents. If requested by the EPA WACOR via written technical direction, the contractor shall provide a memorandum describing how the planned product(s) developed meet EPA's & OW's Information Quality Guidelines. As part of that memo, the contractor shall document the quality assurance procedures used in developing the deliverables under this Work Assignment. The contractor shall provide the memo at the time it delivers the Final Summary Report. As directed by the WACOR via written technical direction, the contractor shall meet with the WACOR (through teleconference) to discuss the Guidelines and the contractor's role in completing the memo and OW IQG checklist.

TASK 3 – Provide Technical Support

Background: In June 2015, EPA published final updated ambient water quality criteria for the protection of human health for 94 chemical pollutants. Ambient water quality criteria developed by EPA under Clean Water Act section 304(a) represent specific levels of chemicals or conditions in a water body that are not expected to cause adverse effects to human health. EPA is required to develop and publish water quality criteria that reflect the latest scientific knowledge. These revised human health criteria to reflect the latest scientific information, including updated exposure factors (body weight, drinking water consumption rates, fish consumption rate), bioaccumulation factors, and toxicity factors (reference dose, cancer slope factor). The criteria were updated to follow the current

EPA methodology for deriving human health criteria (USEPA 2000). EPA also developed chemical specific science documents for each of the 94 chemical pollutants. The science documents detail the latest scientific information supporting the updated final human health criteria, particularly the updated toxicity and exposure input values.

Due to outstanding technical issues, EPA did not update human health criteria for the following chemical pollutants at this time: antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium (III and VI), copper, manganese, methylmercury, nickel, nitrates, nitrosamines, Nnitrosodibutylamine, N-nitrosodiethylamine, N-nitrosopyrrolidine, N-nitrosodimethylamine, Nnitrosodi- n-propylamine, N-nitrosodiphenylamine, polychlorinated biphenyls (PCBs), selenium, thallium, zinc, or 2,3,7,8-TCDD (dioxin).

Task Description: The contractor shall provide technical support for subtask 3.F as described in the PWS. This includes collection and evaluation of the state-of-the-science for specific contaminants and development of human health water quality criteria. Specific activities shall include conducting literature searches and performing systematic reviews; synthesizing evidence from peer reviewed literature and guideline studies to support hazard identification and dose-response modeling for specific contaminants and groups of contaminants; synthesizing evidence from peer reviewed literature, reports and databases to support human health risk and exposure assessments, including occurrence and prevalence of pollutants and routes of exposure; providing technical support in dose-response modeling and statistical analyses of exposure, toxicity and human health data to derive reference values; assessing the potential impact of contaminants on sensitive populations/life-stages in humans; preparing human health risk assessment documents; evaluating distributional or probabilistic approaches for criteria development; responding to Agency and external reviewers' comments; assisting and conducting webinars/workshops; and developing communication materials and Federal Register notices in supporting OST/HECD's mission in evaluating contaminants to protect public health.

The Contractor shall perform the specific tasks in the PWS in accordance with the appropriate EPA risk assessment guidance and science policy guidance (e.g., 2000 Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health, 2005 Guidelines for Carcinogenic Risk Assessment, 1985 etc.).

Subtask 3. F: The Contractor shall prepare, evaluate, and revise technical support documents for the development of human health ambient water quality criteria. These documents shall include hazard identification, metabolism, exposure assessment, mode of action analysis, dose-response modeling, susceptibility/sensitivity and uncertainty analysis and risk characterization of contaminants to develop human health criteria for various water media (e.g., surface water and drinking water). Additionally, the Contractor shall identify and include information on effective risk management practices and risk reduction approaches when available. The contractor shall evaluate the literature and using EPA methodology determine the appropriate relative source contribution, bioaccumulation factors, and toxicity factors (reference dose, cancer slope factor). EPA has done a preliminary evaluation for updated toxicity values that can be shared.

The contractor shall develop updated ambient water quality criteria for the 24 contaminants (Arsenic, Antimony, Asbestos, Barium, Beryllium, Cadmium, Chromium III, Chromium VI, Copper, Manganese, Methylmercury, Nickel, Nitrate, Nitrosamines, N-nitrosodibutylamine, N-

nitrosodiethylamine, N-nitrosodimethylamine, N-nitrosodi-n-propylamine, N-nitrosodiphenylamine, N-nitrosopyrrolidine, Polychlorinated biphenyls (PCBs), Thallium, Selenium, Zinc, 2,3, 7,8-TCDD (dioxin) that were not addressed in EPA's 2015 update.

The contractor shall develop chemical-specific science documents for each of the 24 chemical pollutants. The science documents shall detail the latest scientific information supporting the updated final human health criteria, particularly the updated toxicity and exposure input values described in the June 2015 update (body weight, drinking water consumption rates, fish consumption rate).

Subtask 3.F.1: In addition to the tasks currently described under Subtask 3.F of Work Assignment 2-15, the contractor shall perform the following tasks related to calculating national bioaccumulation factors (BAFs) to support the development of updated human health ambient water quality criteria (HH-AWQC) for the contaminants that were not addressed in EPA's 2015 update:

- Evaluate the variability of BAF and BCF values from literature that the contractor has screened for use in supporting the development of HH-AWQC.
- Compile information recommended for use in EPA's (2007) *Framework for Metals Risk Assessment (*EPA 120/R-07/001. U.S. Environmental Protection Agency, Office of the Science Advisor, Risk Assessment Forum, Washington DC. https://www.epa.gov/sites/production/files/2013-09/documents/metals-risk-assessment-final.pdf) from each of the papers it has collected and screened for use in metals BAF development.
- Evaluate BAFs used in developing EPA's Great Lakes Initiative (GLI) USEPA (U.S. Environmental Protection Agency 1995 Final Water Quality Guidance for the Great Lakes System. U.S. Environmental Protection Agency, Region 5. *Fed. Regist.*, March 23, 1995, 60:15366).
- criteria to determine whether these data and calculations could be used in developing national BAFs for HH-AWQC.
- Perform correlations of metals concentrations and applicable parameters recommended in EPA's (2007) *Framework for Metals Risk Assessment* for discussion with EPA.
- Evaluate existing information on PCBs bioaccumulation and K_{ow} values from scientific literature, EPA's GLI, and additional EPA sources.
- Once final draft BAFs are developed and reviewed by EPA, provide support to EPA in developing a spreadsheet and description of these BAF calculations for public comment.
- Provide support to EPA in responding to public comments received on the final draft BAFs, and preparing final BAF values and documentation to support developing final HH-AWQC.

The contractor shall assist the WACOR in response to comments and revisions to technical support documents for the development of human health ambient water quality criteria.

Technical Editing: The contractor shall provide technical editing of varying degrees. The contractor shall review reports for subtask F of task 3 to ensure correct grammar, spelling, and punctuation; consistency of capitalization, spelling, and hyphenation; agreement of subjects and verbs; check materials, especially tables, figures, units of measure, headings, etc. for consistency of style and format; check placement of tables and figures; and many other details of style. The Contractor shall cross-check references cited in the document to ensure that only those references are included in the

reference list. References in the reference list shall be reviewed to ensure that they are complete, accurate, and properly formatted.

The contractor shall make any necessary revisions and/or formatting corrections to documents. The contractor shall use features of MS Word as needed (e.g., indexing, generated Table of Contents, styles, text art, graphics, etc.). Placement of figures and tables, pagination, and visual checks of page layout shall be completed before a document is submitted to the EPA. Revisions made to documents shall be proofread to ensure consistency and accuracy.

The EPA WACOR will provide the specific details of the technical support needed through written technical direction to the contractor.

Technical Expertise Required:
The key technical individual(s) who work on this assignment shall have an expert working knowledge of EPA's guidance, statutory requirements and methodology for the development of 304(a) criteria, health advisories, etc. for the protection of human health. The Contractor shall possess the technical expertise to perform risk assessments, including problem formulation, hazard identification, exposure analysis, risk characterization and risk communication.

TASK 4 – Provide Summary Reports and Presentations

Background: Pre-decisional processes require the collection and analysis of in-depth and issue-specific technical research and analysis. The information is often needed in a summarized format to give progress updates to internal management.

Task Description: The contractor shall provide a variety of summary materials for the purpose of presenting information to and briefing internal management. Given the case-specific nature of these requests, additional details/information regarding what these deliverables shall look like will be provided via written technical direction. All final documents delivered shall be ADA 508-compliant in MS Word, PDF, PowerPoint, Excel or other format as directed via written technical direction by the WACOR.

Subtask A. Fact Sheets
Subtask B. Visual Media

TASK 5 - Assist with Communication and Outreach

The contractor shall assist with efforts to communicate information about water quality standards-related actions to the public and key stakeholders. This includes development of communication strategies that identify target audiences, messages to reach those audiences, and products appropriate for each audience, in addition to identifying distribution mechanisms, and evaluating outreach efforts.

Sub Task 5.1: <u>Assist and conduct six webinars and one workshop under this current performance period</u>

The contractor shall provide logistics support for two webinars (2) and one (1) workshop under this current performance period ending June 30, 2018. The dates for these webinars and workshops are still to be determined.

Webinar Support:

The contractor shall assist EPA WACOR with:

1. **Pre-webinar**

   The contractor shall develop for each webinar the following materials:

   - Webinar announcement;
   - Contact presenters and request short biography and presentation materials;
   - Set up the Adobe webinar with agenda (provided by the EPA WACOR), and presentation materials.
   - Set up and provide support for a webinar dry run with speakers.

The contractor shall provide the EPA WACOR with the above materials for review and approval. Based on the EPA WACOR's comments, through written technical direction, the contractor shall develop the Final Preliminary Agenda, Announcement and Pre-Registration.

The Final Preliminary Agenda, Announcement and Pre-Registration shall be QA/QC'd by the Contractor and reviewed by the EPA WACOR to assure accuracy of information and shall contain no typographical errors and sent electronically to all members and invited speakers.

The EPA WACOR will provide the contractor a list of items for the final agenda. The contractor shall format the final agenda for the meeting. The Contractor shall provide the EPA WACOR a draft of the agenda for review and approval. Based on the EPA WACOR's comments, the contractor shall develop the final agenda.

The final agenda shall be QA/QC'd by the contractor to assure accuracy of information and typographical errors.

2. **Webinar**

   The contractor shall provide logistics support throughout the webinar to:

   - Provide the logistics at the beginning of the webinar;
   - Muting and unmuting the phone lines;
   - Record presentations and discussions for the post-meeting report.

3. **Post-webinar**

   - The contractor shall deliver a draft meeting summary which shall include transcript of audio-taping and the notes taken from the meeting. The EPA WACOR will review the draft summary and provide comments to the contractor. After incorporating the EPA WACOR's comments, the contractor shall distribute the draft meeting summary to the speakers for review before finalizing the meeting summary report. The contractor shall produce a final draft based on the EPA WACOR's and the speakers written comments. The contractor shall send a copy of the final draft electronically, in the format specified, to the EPA WACOR. After receiving comments from the EPA

WACOR, the contractor shall finalize the Meeting Summary Report. The summary reports shall be 508 compliant

Workshop Support:

The contractor shall assist EPA WACOR with:

4. **Pre-workshop**
   - The contractor shall contact non-federal speakers and coordinate their travel arrangements (hotel and air travel). The contractor shall provide EPA WACOR rough estimates for approval before contacting speakers.
   - Hotel arrangements shall be done with the hotel chosen by the Workshop organizers, and the airfare shall be done by the most direct and least expensive economy class airfare.
   - The EAP WACOR will provide workshop materials such as Agenda, workshop information sheet, list of participants and presenter biographies, resource list and evaluation form) for printing and package preparation.
   - The contractor shall send via email the workshop materials to the EPA Regional representative or meeting location.

5. **Workshop**
   - The contractor shall provide technical support for speakers presenting online (through Adobe webinar), as stated above.

E. SCHEDULE OF BENCHMARKS & DELIVERABLES:

Task/ Subtask	DELIVERABLE	Schedule
1	**Work Plan**	As per Contract EP-C-14-016 requirements
2.1	**Information Quality Guidelines & Information Quality Review**	Due as requested by the EPA WA-COR via written technical direction
3.F	**Criteria Documents for 24 Contaminants**	Due as requested by the EPA WA-COR via written technical direction
3.F.1	**Draft BAFs**	Due as requested by the EPA WA-COR via written technical direction
3.F.1	**Final BAFs**	Due as requested by the EPA WA-COR via written technical direction
4	**Presentations and Follow-up Materials**	Due as requested by the EPA WA-COR via written technical direction
5	**Communication Strategies**	Due as requested by the EPA WA-COR via written technical direction
5.1	**Webinar and Workshop support**	TBD

Draft written deliverable(s) for review by the EPA WACOR shall be prepared in accordance with the schedule in the WA Schedule of Benchmarks and Deliverables.

Final written deliverable(s) shall be furnished in accordance with the schedule in the WA Schedule of Benchmarks and Deliverables, after written comments are received from the EPA WACOR.

TRAVEL: Some travel is anticipated under this work assignment. For cost estimate purposes, assume three one-day trips for one person from contractor location to any site nationwide (use trip to Florida to generate estimate) as identified by the EPA WACOR, with site visit schedules arranged to minimize travel time. All travel under this WA shall be in compliance with contract requirements.

PRINTING

All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

CONTRACTOR IDENTIFICATION

Contractor personnel shall clearly identify corporate affiliation at the start of any meeting or training workshop. While attending EPA-sponsored meetings, conferences, symposia, etc., or while on a Government site, Contractor personnel shall wear a badge that identifies the individual as a contractor employee. Contractor personnel are strictly prohibited from acting as a representative of the Agency meetings, conferences, symposia, etc.

MEETINGS, CONFERENCES, TRANINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than $20,000, shall be obtained by the EPA Contract Level COR as needed and provided to the Contracting Officer. Work under conference-related activities and expenses shall not occur until this approval is obtained and provided by the EPA Contract Level COR.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-15

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base X Option Period Number	

Contractor: TETRA TECH, INC.

Specify Section and paragraph of Contract SOW:

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 07/01/2017 To 06/30/2018

Comments:
The purpose of Amendment 1 is to increase the LOE (605 hours) for Subtask 3.F.1 (highlighted)

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 08/05/2014 To 06/30/2018		
This Action:		
Total:		

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Shamima Akhter (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 202-566-1341	
	FAX Number:	
Project Officer Name: Thomas Gardner (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 202-566-0386	
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 513-487-2002	
	FAX Number:	

PERFORMANCE WORK STATEMENT
Tetra Tech Contract No. EP-C-14-016
Work Assignment # 3-15 Amendment 1

A. TITLE: Technical Support for Development of Human Health and Aquatic Life Water Quality Criteria

B. Work Assignment Contracting Officer Representative (WA-COR)

NAME: Shamima Akhter
TITLE: Microbiologist
PHONE: 202-566-1341
FAX: 202-566-1140
E-MAIL: Akhter.shamima@epa.gov

Alternate Work Assignment Contracting Officer Representative (AWA-COR)

NAME: John Ravenscroft
TITLE: Microbiologist
PHONE: 202-566-1101
FAX: 202-566-1140
E-MAIL: ravenscroft.john@epa.gov

C. PERIOD OF PERFORMANCE: Date of issuance through 06/30/2018

D TASKS:

Purpose: The purpose of this Amendment 1 is to increase LOE (605 hours) and to add tasks on Subtask 3.F.1 (highlighted)

TASK 1 – Work plan and monthly progress reports

The contractor shall develop a detail work plan and cost estimate for tasks outlined in this work assignment. The plan shall contain, but not be limited to, work-flowchart, elaborate schedule, staffing plan and qualifications of proposed staff, budget for task and level of effort (LOE). Prior to the submission of the work plan, the contractor shall consult with the EPA WACOR via conference call to mitigate any potential issues that need clarifications. The contractor shall include information on plans to manage work and control contract costs. All P levels, hours and total dollars for tasks shall be provided and costs greater than $100.00 shall be itemized in detail. The contractor shall provide their job number with all invoices to facilitate their expediency. The plan shall be submitted in accordance with the requirements noted in Contract EP-C-14-016.

This task also includes monthly progress and financial reports. The monthly progress report shall indicate, in a separate QA section, whether significant QA issues have been identified and how they are being resolved. Monthly financial reports shall include a table with the invoice LOE and costs broken out by the tasks in this work assignment.

TASK 2 – Quality Assurance

This work assignment requires the use of only existing data. This Quality Assurance Section only applies to Subtask F of Task 3. The tasks in this Performance Work Statement (PWS) require the use of secondary data/analyses, model application and fall under the scope of the approved contract-level quality assurance project plan (QAPP) (EP-C-11-009; WA # 4-60) and the supplemental quality assurance project plan (QAPP) Number 403 (Revision 2) (EP-C-14-016, WA# 1-15), February 16, 2016. Consistent with the Agency's quality assurance (QA) requirements, the contractor shall assure the quality and analyses of the secondary data to be used under this work assignment.

Any additional quality assurance requirements shall be addressed in the work plan and monthly progress reports and, if needed, be covered by a work assignment-specific QAPP supplement, which shall be approved by the EPA WACOR & HECD QAC before activities covered by the additional QA requirements through-out performance of Subtask F of this work assignment.

Subtask F in this WA requires the use of secondary data and shall be implemented in accordance with approved project-specific QAPP (EP-C-11-009; WA # 4-60) and the supplemental quality assurance project plan (QAPP) Number 403 (Revision 2) (EP-C-14-016, WA# 1-15), February 16, 2016 to assure that the quality of the primary or secondary data and analyses (including modeling and statistical analyses) are accurate and correct.

Subtask 2.1: Information Quality Guidelines & Information Quality Review

The contractor shall ensure the products developed under this work assignment comply with EPA's Quality System and other related QA policies, the Office of Water's Quality Management Plan. The contractor shall ensure that the information in the products meets the standards of "Objectivity", "Integrity" , "Utility" , "Reproducibility" and "Transparency" as described in the OW Information Quality Guideline (IQG) for each deliverables from this work assignment as they may be used in Agency decision-making and/or will be publicly available documents. If requested by the EPA WACOR via written technical direction, the contractor shall provide a memorandum describing how the planned product(s) developed meet EPA's & OW's Information Quality Guidelines. As part of that memo, the contractor shall document the quality assurance procedures used in developing the deliverables under this Work Assignment. The contractor shall provide the memo at the time it delivers the Final Summary Report. As directed by the WACOR via written technical direction, the contractor shall meet with the WACOR (through teleconference) to discuss the Guidelines and the contractor's role in completing the memo and OW IQG checklist.

TASK 3 – Provide Technical Support

Background: In June 2015, EPA published final updated ambient water quality criteria for the protection of human health for 94 chemical pollutants. Ambient water quality criteria developed by EPA under Clean Water Act section 304(a) represent specific levels of chemicals or conditions in a water body that are not expected to cause adverse effects to human health. EPA is required to develop and publish water quality criteria that reflect the latest scientific knowledge. These revised human health criteria to reflect the latest scientific information, including updated exposure factors (body

weight, drinking water consumption rates, fish consumption rate), bioaccumulation factors, and toxicity factors (reference dose, cancer slope factor). The criteria were updated to follow the current EPA methodology for deriving human health criteria (USEPA 2000). EPA also developed chemical specific science documents for each of the 94 chemical pollutants. The science documents detail the latest scientific information supporting the updated final human health criteria, particularly the updated toxicity and exposure input values.

Due to outstanding technical issues, EPA did not update human health criteria for the following chemical pollutants at this time: antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium (III and VI), copper, manganese, methylmercury, nickel, nitrates, nitrosamines, Nnitrosodibutylamine, N-nitrosodiethylamine, N-nitrosopyrrolidine, N-nitrosodimethylamine, Nnitrosodi- n-propylamine, N-nitrosodiphenylamine, polychlorinated biphenyls (PCBs), selenium, thallium, zinc, or 2,3,7,8-TCDD (dioxin).

Task Description: The contractor shall provide technical support for subtask 3.F as described in the PWS. This includes collection and evaluation of the state-of-the-science for specific contaminants and development of human health water quality criteria. Specific activities shall include conducting literature searches and performing systematic reviews; synthesizing evidence from peer reviewed literature and guideline studies to support hazard identification and dose-response modeling for specific contaminants and groups of contaminants; synthesizing evidence from peer reviewed literature, reports and databases to support human health risk and exposure assessments, including occurrence and prevalence of pollutants and routes of exposure; providing technical support in dose-response modeling and statistical analyses of exposure, toxicity and human health data to derive reference values; assessing the potential impact of contaminants on sensitive populations/life-stages in humans; preparing human health risk assessment documents; evaluating distributional or probabilistic approaches for criteria development; responding to Agency and external reviewers' comments; assisting and conducting webinars/workshops; and developing communication materials and Federal Register notices in supporting OST/HECD's mission in evaluating contaminants to protect public health.

The Contractor shall perform the specific tasks in the PWS in accordance with the appropriate EPA risk assessment guidance and science policy guidance (e.g., 2000 Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health, 2005 Guidelines for Carcinogenic Risk Assessment, 1985 etc.).

Subtask 3. F: The Contractor shall prepare, evaluate, and revise technical support documents for the development of human health ambient water quality criteria. These documents shall include hazard identification, metabolism, exposure assessment, mode of action analysis, dose-response modeling, susceptibility/sensitivity and uncertainty analysis and risk characterization of contaminants to develop human health criteria for various water media (e.g., surface water and drinking water). Additionally, the Contractor shall identify and include information on effective risk management practices and risk reduction approaches when available. The contractor shall evaluate the literature and using EPA methodology determine the appropriate relative source contribution, bioaccumulation factors, and toxicity factors (reference dose, cancer slope factor). EPA has done a preliminary evaluation for updated toxicity values that can be shared.

The contractor shall develop updated ambient water quality criteria for the 24 contaminants (Arsenic, Antimony, Asbestos, Barium, Beryllium, Cadmium, Chromium III, Chromium VI, Copper, Manganese, Methylmercury, Nickel, Nitrate, Nitrosamines, N-nitrosodibutylamine, N-nitrosodiethylamine, N-nitrosodimethylamine, N-nitrosodi-n-propylamine, N-nitrosodiphenylamine, N-nitrosopyrrolidine, Polychlorinated biphenyls (PCBs), Thallium, Selenium, Zinc, 2,3, 7,8-TCDD (dioxin) that were not addressed in EPA's 2015 update.

The contractor shall develop chemical-specific science documents for each of the 24 chemical pollutants. The science documents shall detail the latest scientific information supporting the updated final human health criteria, particularly the updated toxicity and exposure input values described in the June 2015 update (body weight, drinking water consumption rates, fish consumption rate).

Subtask 3.F.1: In addition to the tasks currently described under Subtask 3.F of Work Assignment 2-15, the contractor shall perform the following tasks related to calculating national bioaccumulation factors (BAFs) to support the development of updated human health ambient water quality criteria (HH-AWQC) for the contaminants that were not addressed in EPA's 2015 update:

- Evaluate the variability of BAF and BCF values from literature that the contractor has screened for use in supporting the development of HH-AWQC.
- Compile information recommended for use in EPA's (2007) *Framework for Metals Risk Assessment (*EPA 120/R-07/001. U.S. Environmental Protection Agency, Office of the Science Advisor, Risk Assessment Forum, Washington DC. https://www.epa.gov/sites/production/files/2013-09/documents/metals-risk-assessment-final.pdf) from each of the papers it has collected and screened for use in metals BAF development.
- Evaluate BAFs used in developing EPA's Great Lakes Initiative (GLI) USEPA (U.S. Environmental Protection Agency 1995 Final Water Quality Guidance for the Great Lakes System. U.S. Environmental Protection Agency, Region 5. *Fed. Regist.*, March 23, 1995, 60:15366).
- criteria to determine whether these data and calculations could be used in developing national BAFs for HH-AWQC.
- Perform correlations of metals concentrations and applicable parameters recommended in EPA's (2007) *Framework for Metals Risk Assessment* for discussion with EPA.
- Evaluate existing information on PCBs bioaccumulation and K_{ow} values from scientific literature, EPA's GLI, and additional EPA sources.
- Once final draft BAFs are developed and reviewed by EPA, provide support to EPA in developing a spreadsheet and description of these BAF calculations for public comment.
- Provide support to EPA in responding to public comments received on the final draft BAFs, and preparing final BAF values and documentation to support developing final HH-AWQC.
- Evaluate bioaccumulation data using the screening criteria compilation; this compilation was primarily based on the screening criteria used in the Arnot & Gobas and Environment Canada Databases, EPA's (1995) Great Lakes Initiative (GLI) Guidance, EPA's (1995) GLI Supplementary Information Document (SID) Guidance, 40 CFR 132 – Water Quality Guidance for the Great Lakes System, EPA's (2007) Metals Framework, the U.S. Geological Survey's Open File Report 00-416 on the DYNBAM Model for Selenium, and EPA's (2003) Arsenic BAF Compilation.

- Evaluate time 0 and background metal level concentrations provided in original bioaccumulation data sources for use in determining "essential metal concentrations."
- Identify percent moisture information for organisms in the bioaccumulation spreadsheet for which dry weight concentration values were provided.
- Perform QC checks of collected percent moisture information.
- Prepare ADA 508-compliant versions of final criteria documents.
- Develop a final BAF calculation spreadsheet and companion document for the updated 24 criteria chemicals.

The contractor shall assist the WACOR in response to comments and revisions to technical support documents for the development of human health ambient water quality criteria.

Technical Editing: The contractor shall provide technical editing of varying degrees. The contractor shall review reports for subtask F of task 3 to ensure correct grammar, spelling, and punctuation; consistency of capitalization, spelling, and hyphenation; agreement of subjects and verbs; check materials, especially tables, figures, units of measure, headings, etc. for consistency of style and format; check placement of tables and figures; and many other details of style. The Contractor shall cross-check references cited in the document to ensure that only those references are included in the reference list. References in the reference list shall be reviewed to ensure that they are complete, accurate, and properly formatted.

The contractor shall make any necessary revisions and/or formatting corrections to documents. The contractor shall use features of MS Word as needed (e.g., indexing, generated Table of Contents, styles, text art, graphics, etc.). Placement of figures and tables, pagination, and visual checks of page layout shall be completed before a document is submitted to the EPA. Revisions made to documents shall be proofread to ensure consistency and accuracy.

The EPA WACOR will provide the specific details of the technical support needed through written technical direction to the contractor.

Technical Expertise Required:
The key technical individual(s) who work on this assignment shall have an expert working knowledge of EPA's guidance, statutory requirements and methodology for the development of 304(a) criteria, health advisories, etc. for the protection of human health. The Contractor shall possess the technical expertise to perform risk assessments, including problem formulation, hazard identification, exposure analysis, risk characterization and risk communication.

TASK 4 – Provide Summary Reports and Presentations

Background: Pre-decisional processes require the collection and analysis of in-depth and issue-

specific technical research and analysis. The information is often needed in a summarized format to give progress updates to internal management.

Task Description: The contractor shall provide a variety of summary materials for the purpose of presenting information to and briefing internal management. Given the case-specific nature of these requests, additional details/information regarding what these deliverables shall look like will be provided via written technical direction. All final documents delivered shall be ADA 508-compliant in MS Word, PDF, PowerPoint, Excel or other format as directed via written technical direction by the WACOR.

Subtask A. Fact Sheets
Subtask B. Visual Media

TASK 5 - Assist with Communication and Outreach

The contractor shall assist with efforts to communicate information about water quality standards-related actions to the public and key stakeholders. This includes development of communication strategies that identify target audiences, messages to reach those audiences, and products appropriate for each audience, in addition to identifying distribution mechanisms, and evaluating outreach efforts.

Sub Task 5.1: Assist and conduct six webinars and one workshop under this current performance period

The contractor shall provide logistics support for two webinars (2) and one (1) workshop under this current performance period ending June 30, 2018. The dates for these webinars and workshops are still to be determined.

Webinar Support:

The contractor shall assist EPA WACOR with:

1. **Pre-webinar**
   The contractor shall develop for each webinar the following materials:
   - Webinar announcement;
   - Contact presenters and request short biography and presentation materials;
   - Set up the Adobe webinar with agenda (provided by the EPA WACOR), and presentation materials.
   - Set up and provide support for a webinar dry run with speakers.

The contractor shall provide the EPA WACOR with the above materials for review and approval. Based on the EPA WACOR's comments, through written technical direction, the contractor shall develop the Final Preliminary Agenda, Announcement and Pre-Registration.

The Final Preliminary Agenda, Announcement and Pre-Registration shall be QA/QC'd by the Contractor and reviewed by the EPA WACOR to assure accuracy of information and shall contain no typographical errors and sent electronically to all members and invited speakers.

The EPA WACOR will provide the contractor a list of items for the final agenda. The contractor shall format the final agenda for the meeting. The Contractor shall provide the EPA WACOR a draft of the

agenda for review and approval. Based on the EPA WACOR's comments, the contractor shall develop the final agenda.

The final agenda shall be QA/QC'd by the contractor to assure accuracy of information and typographical errors.

2. **Webinar**
   The contractor shall provide logistics support throughout the webinar to:
   - Provide the logistics at the beginning of the webinar;
   - Muting and unmuting the phone lines;
   - Record presentations and discussions for the post-meeting report.

3. **Post-webinar**

   - The contractor shall deliver a draft meeting summary which shall include transcript of audio-taping and the notes taken from the meeting. The EPA WACOR will review the draft summary and provide comments to the contractor. After incorporating the EPA WACOR's comments, the contractor shall distribute the draft meeting summary to the speakers for review before finalizing the meeting summary report. The contractor shall produce a final draft based on the EPA WACOR's and the speakers written comments. The contractor shall send a copy of the final draft electronically, in the format specified, to the EPA WACOR. After receiving comments from the EPA WACOR, the contractor shall finalize the Meeting Summary Report. The summary reports shall be 508 compliant

Workshop Support:
The contractor shall assist EPA WACOR with:

4. **Pre-workshop**
   - The contractor shall contact non-federal speakers and coordinate their travel arrangements (hotel and air travel). The contractor shall provide EPA WACOR rough estimates for approval before contacting speakers.
   - Hotel arrangements shall be done with the hotel chosen by the Workshop organizers, and the airfare shall be done by the most direct and least expensive economy class airfare.
   - The EAP WACOR will provide workshop materials such as Agenda, workshop information sheet, list of participants and presenter biographies, resource list and evaluation form) for printing and package preparation.
   - The contractor shall send via email the workshop materials to the EPA Regional representative or meeting location.

5. **Workshop**
   - The contractor shall provide technical support for speakers presenting online (through Adobe webinar), as stated above.

E. SCHEDULE OF BENCHMARKS & DELIVERABLES:

Task/ Subtask	DELIVERABLE	Schedule
1	**Work Plan**	As per Contract EP-C-14-016 requirements
2.1	**Information Quality Guidelines & Information Quality Review**	Due as requested by the EPA WA-COR via written technical direction
3.F	**Criteria Documents for 24 Contaminants**	Due as requested by the EPA WA-COR via written technical direction
3.F.1	**Draft BAFs**	Due as requested by the EPA WA-COR via written technical direction
3.F.1	**Final BAFs**	Due as requested by the EPA WA-COR via written technical direction
4	**Presentations and Follow-up Materials**	Due as requested by the EPA WA-COR via written technical direction
5	**Communication Strategies**	Due as requested by the EPA WA-COR via written technical direction
5.1	**Webinar and Workshop support**	TBD

Draft written deliverable(s) for review by the EPA WACOR shall be prepared in accordance with the schedule in the WA Schedule of Benchmarks and Deliverables.

Final written deliverable(s) shall be furnished in accordance with the schedule in the WA Schedule of Benchmarks and Deliverables, after written comments are received from the EPA WACOR.

TRAVEL: Some travel is anticipated under this work assignment. For cost estimate purposes, assume three one-day trips for one person from contractor location to any site nationwide (use trip to Florida to generate estimate) as identified by the EPA WACOR, with site visit schedules arranged to minimize travel time. All travel under this WA shall be in compliance with contract requirements.

PRINTING

All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

CONTRACTOR IDENTIFICATION

Contractor personnel shall clearly identify corporate affiliation at the start of any meeting or training workshop. While attending EPA-sponsored meetings, conferences, symposia, etc., or while on a Government site, Contractor personnel shall wear a badge that identifies the individual as a contractor employee. Contractor personnel are strictly prohibited from acting as a representative of the Agency meetings, conferences, symposia, etc.

MEETINGS, CONFERENCES, TRANINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more

than $20,000, shall be obtained by the EPA Contract Level COR as needed and provided to the Contracting Officer. Work under conference-related activities and expenses shall not occur until this approval is obtained and provided by the EPA Contract Level COR.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-15

☐ Other ☒ Amendment Number: 000002

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018	
	Base Option Period Number 3	

Contractor: TETRA TECH, INC.

Specify Section and paragraph of Contract SOW:

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 07/01/2017 To 06/30/2018

Comments:
The purpose of this amendment is to increase the LOE by 200 hours, per the attached PWS. All other terms and conditions shall remain unchanged.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 08/05/2014 To 06/30/2018		1,975
This Action:		200
Total:		2,175

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Shamima Akhter	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1341 FAX Number:
Project Officer Name: Tanyan Bailey	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-564-3133 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Courtney Stallworth	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2002 FAX Number:

PERFORMANCE WORK STATEMENT
Tetra Tech Contract No. EP-C-14-016
Work Assignment # 3-15 Amendment 2

A. TITLE: Technical Support for Development of Human Health and Aquatic Life Water Quality Criteria

B. Work Assignment Contracting Officer Representative (WA-COR)

NAME: Shamima Akhter
TITLE: Microbiologist
PHONE: 202-566-1341
FAX: 202-566-1140
E-MAIL: Akhter.shamima@epa.gov

Alternate Work Assignment Contracting Officer Representative (AWA-COR)

NAME: John Ravenscroft
TITLE: Microbiologist
PHONE: 202-566-1101
FAX: 202-566-1140
E-MAIL: ravenscroft.john@epa.gov

C. PERIOD OF PERFORMANCE: Date of issuance through 06/30/2018

D TASKS:

Purpose of the Amendment: The purpose of this work assignment amendment is to provide additional LOE (200 hours) to support efforts related to Task 5 Subtask 5.1 (highlighted). All tasks in the work assignment remain the same, no change.

TASK 1 – Work plan and monthly progress reports

The contractor shall develop a detail work plan and cost estimate for tasks outlined in this work assignment. The plan shall contain, but not be limited to, work-flowchart, elaborate schedule, staffing plan and qualifications of proposed staff, budget for task and level of effort (LOE). Prior to the submission of the work plan, the contractor shall consult with the EPA WACOR via conference call to mitigate any potential issues that need clarifications. The contractor shall include information on plans to manage work and control contract costs. All P levels, hours and total dollars for tasks shall be provided and costs greater than $100.00 shall be itemized in detail. The contractor shall provide their job number with all invoices to facilitate their expediency. The plan shall be submitted in accordance with the requirements noted in Contract EP-C-14-016.

This task also includes monthly progress and financial reports. The monthly progress report shall indicate, in a separate QA section, whether significant QA issues have been identified and how they

are being resolved. Monthly financial reports shall include a table with the invoice LOE and costs broken out by the tasks in this work assignment.

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Any additional quality assurance requirements shall be addressed in the work plan and monthly progress reports and, if needed, be covered by a work assignment-specific QAPP supplement, which shall be approved by the EPA WACOR & HECD QAC before activities covered by the additional QA requirements through-out performance of Subtask F of this work assignment.

Subtask F in this WA requires the use of secondary data and shall be implemented in accordance with approved project-specific QAPP (EP-C-11-009; WA # 4-60) and the supplemental quality assurance project plan (QAPP) Number 403 (Revision 2) (EP-C-14-016, WA# 1-15), February 16, 2016 to assure that the quality of the primary or secondary data and analyses (including modeling and statistical analyses) are accurate and correct.

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The contractor shall ensure the products developed under this work assignment comply with EPA's Quality System and other related QA policies, the Office of Water's Quality Management Plan. The contractor shall ensure that the information in the products meets the standards of "Objectivity", "Integrity" , "Utility" , "Reproducibility" and "Transparency" as described in the OW Information Quality Guideline (IQG) for each deliverables from this work assignment as they may be used in Agency decision-making and/or will be publicly available documents. If requested by the EPA WACOR via written technical direction, the contractor shall provide a memorandum describing how the planned product(s) developed meet EPA's & OW's Information Quality Guidelines. As part of that memo, the contractor shall document the quality assurance procedures used in developing the deliverables under this Work Assignment. The contractor shall provide the memo at the time it delivers the Final Summary Report. As directed by the WACOR via written technical direction, the contractor shall meet with the WACOR (through teleconference) to discuss the Guidelines and the contractor's role in completing the memo and OW IQG checklist.

TASK 3 – Provide Technical Support

Background: In June 2015, EPA published final updated ambient water quality criteria for the protection of human health for 94 chemical pollutants. Ambient water quality criteria developed by EPA under Clean Water Act section 304(a) represent specific levels of chemicals or conditions in a water body that are not expected to cause adverse effects to human health. EPA is required to develop

and publish water quality criteria that reflect the latest scientific knowledge. These revised human health criteria to reflect the latest scientific information, including updated exposure factors (body weight, drinking water consumption rates, fish consumption rate), bioaccumulation factors, and toxicity factors (reference dose, cancer slope factor). The criteria were updated to follow the current EPA methodology for deriving human health criteria (USEPA 2000). EPA also developed chemical specific science documents for each of the 94 chemical pollutants. The science documents detail the latest scientific information supporting the updated final human health criteria, particularly the updated toxicity and exposure input values.

Due to outstanding technical issues, EPA did not update human health criteria for the following chemical pollutants at this time: antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium (III and VI), copper, manganese, methylmercury, nickel, nitrates, nitrosamines, Nnitrosodibutylamine, N-nitrosodiethylamine, N-nitrosopyrrolidine, N-nitrosodimethylamine, Nnitrosodi- n-propylamine, N-nitrosodiphenylamine, polychlorinated biphenyls (PCBs), selenium, thallium, zinc, or 2,3,7,8-TCDD (dioxin).

Task Description: The contractor shall provide technical support for subtask 3.F as described in the PWS. This includes collection and evaluation of the state-of-the-science for specific contaminants and development of human health water quality criteria. Specific activities shall include conducting literature searches and performing systematic reviews; synthesizing evidence from peer reviewed literature and guideline studies to support hazard identification and dose-response modeling for specific contaminants and groups of contaminants; synthesizing evidence from peer reviewed literature, reports and databases to support human health risk and exposure assessments, including occurrence and prevalence of pollutants and routes of exposure; providing technical support in dose-response modeling and statistical analyses of exposure, toxicity and human health data to derive reference values; assessing the potential impact of contaminants on sensitive populations/life-stages in humans; preparing human health risk assessment documents; evaluating distributional or probabilistic approaches for criteria development; responding to Agency and external reviewers' comments; assisting and conducting webinars/workshops; and developing communication materials and Federal Register notices in supporting OST/HECD's mission in evaluating contaminants to protect public health.

The Contractor shall perform the specific tasks in the PWS in accordance with the appropriate EPA risk assessment guidance and science policy guidance (e.g., 2000 Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health, 2005 Guidelines for Carcinogenic Risk Assessment, 1985 etc.).

Subtask 3. F: The Contractor shall prepare, evaluate, and revise technical support documents for the development of human health ambient water quality criteria. These documents shall include hazard identification, metabolism, exposure assessment, mode of action analysis, dose-response modeling, susceptibility/sensitivity and uncertainty analysis and risk characterization of contaminants to develop human health criteria for various water media (e.g., surface water and drinking water). Additionally, the Contractor shall identify and include information on effective risk management practices and risk reduction approaches when available. The contractor shall evaluate the literature and using EPA methodology determine the appropriate relative source contribution, bioaccumulation factors, and toxicity factors (reference dose, cancer slope factor). EPA has done a preliminary evaluation for updated toxicity values that can be shared.

The contractor shall develop updated ambient water quality criteria for the 24 contaminants (Arsenic, Antimony, Asbestos, Barium, Beryllium, Cadmium, Chromium III, Chromium VI, Copper, Manganese, Methylmercury, Nickel, Nitrate, Nitrosamines, N-nitrosodibutylamine, N-nitrosodiethylamine, N-nitrosodimethylamine, N-nitrosodi-n-propylamine, N-nitrosodiphenylamine, N-nitrosopyrrolidine, Polychlorinated biphenyls (PCBs), Thallium, Selenium, Zinc, 2,3, 7,8-TCDD (dioxin) that were not addressed in EPA's 2015 update.

The contractor shall develop chemical-specific science documents for each of the 24 chemical pollutants. The science documents shall detail the latest scientific information supporting the updated final human health criteria, particularly the updated toxicity and exposure input values described in the June 2015 update (body weight, drinking water consumption rates, fish consumption rate).

Subtask 3.F.1: In addition to the tasks currently described under Subtask 3.F of Work Assignment 2-15, the contractor shall perform the following tasks related to calculating national bioaccumulation factors (BAFs) to support the development of updated human health ambient water quality criteria (HH-AWQC) for the contaminants that were not addressed in EPA's 2015 update:

- Evaluate the variability of BAF and BCF values from literature that the contractor has screened for use in supporting the development of HH-AWQC.
- Compile information recommended for use in EPA's (2007) *Framework for Metals Risk Assessment (*EPA 120/R-07/001. U.S. Environmental Protection Agency, Office of the Science Advisor, Risk Assessment Forum, Washington DC. https://www.epa.gov/sites/production/files/2013-09/documents/metals-risk-assessment-final.pdf) from each of the papers it has collected and screened for use in metals BAF development.
- Evaluate BAFs used in developing EPA's Great Lakes Initiative (GLI) USEPA (U.S. Environmental Protection Agency 1995 Final Water Quality Guidance for the Great Lakes System. U.S. Environmental Protection Agency, Region 5. *Fed. Regist.*, March 23, 1995, 60:15366).
- criteria to determine whether these data and calculations could be used in developing national BAFs for HH-AWQC.
- Perform correlations of metals concentrations and applicable parameters recommended in EPA's (2007) *Framework for Metals Risk Assessment* for discussion with EPA.
- Evaluate existing information on PCBs bioaccumulation and K_{ow} values from scientific literature, EPA's GLI, and additional EPA sources.
- Once final draft BAFs are developed and reviewed by EPA, provide support to EPA in developing a spreadsheet and description of these BAF calculations for public comment.
- Provide support to EPA in responding to public comments received on the final draft BAFs, and preparing final BAF values and documentation to support developing final HH-AWQC.
- Evaluate bioaccumulation data using the screening criteria compilation; this compilation was primarily based on the screening criteria used in the Arnot & Gobas and Environment Canada Databases, EPA's (1995) Great Lakes Initiative (GLI) Guidance, EPA's (1995) GLI Supplementary Information Document (SID) Guidance, 40 CFR 132 – Water Quality Guidance for the Great Lakes System, EPA's (2007) Metals Framework, the U.S. Geological

Survey's Open File Report 00-416 on the DYNBAM Model for Selenium, and EPA's (2003) Arsenic BAF Compilation.

- Evaluate time 0 and background metal level concentrations provided in original bioaccumulation data sources for use in determining "essential metal concentrations."

- Identify percent moisture information for organisms in the bioaccumulation spreadsheet for which dry weight concentration values were provided.

- Perform QC checks of collected percent moisture information.

- Prepare ADA 508-compliant versions of final criteria documents.

- Develop a final BAF calculation spreadsheet and companion document for the updated 24 criteria chemicals.

The contractor shall assist the WACOR in response to comments and revisions to technical support documents for the development of human health ambient water quality criteria.

Technical Editing: The contractor shall provide technical editing of varying degrees. The contractor shall review reports for subtask F of task 3 to ensure correct grammar, spelling, and punctuation; consistency of capitalization, spelling, and hyphenation; agreement of subjects and verbs; check materials, especially tables, figures, units of measure, headings, etc. for consistency of style and format; check placement of tables and figures; and many other details of style. The Contractor shall cross-check references cited in the document to ensure that only those references are included in the reference list. References in the reference list shall be reviewed to ensure that they are complete, accurate, and properly formatted.

The contractor shall make any necessary revisions and/or formatting corrections to documents. The contractor shall use features of MS Word as needed (e.g., indexing, generated Table of Contents, styles, text art, graphics, etc.). Placement of figures and tables, pagination, and visual checks of page layout shall be completed before a document is submitted to the EPA. Revisions made to documents shall be proofread to ensure consistency and accuracy.

The EPA WACOR will provide the specific details of the technical support needed through written technical direction to the contractor.

Technical Expertise Required:
The key technical individual(s) who work on this assignment shall have an expert working knowledge of EPA's guidance, statutory requirements and methodology for the development of 304(a) criteria, health advisories, etc. for the protection of human health. The Contractor shall possess the technical expertise to perform risk assessments, including problem formulation, hazard identification, exposure analysis, risk characterization and risk communication.

TASK 4 – Provide Summary Reports and Presentations

Background: Pre-decisional processes require the collection and analysis of in-depth and issue-specific technical research and analysis. The information is often needed in a summarized format to give progress updates to internal management.

Task Description: The contractor shall provide a variety of summary materials for the purpose of presenting information to and briefing internal management. Given the case-specific nature of these requests, additional details/information regarding what these deliverables shall look like will be provided via written technical direction. All final documents delivered shall be ADA 508-compliant in MS Word, PDF, PowerPoint, Excel or other format as directed via written technical direction by the WACOR.

Subtask A. Fact Sheets
Subtask B. Visual Media

TASK 5 - Assist with Communication and Outreach

The contractor shall assist with efforts to communicate information about water quality standards-related actions to the public and key stakeholders. This includes development of communication strategies that identify target audiences, messages to reach those audiences, and products appropriate for each audience, in addition to identifying distribution mechanisms, and evaluating outreach efforts.

Sub Task 5.1: Assist and conduct six webinars and one workshop under this current performance period

The contractor shall provide logistics support for two webinars (2) and one (1) workshop under this current performance period ending June 30, 2018. The dates for these webinars and workshops are still to be determined.

Webinar Support:

The contractor shall assist EPA WACOR with:

1. **Pre-webinar**
   The contractor shall develop for each webinar the following materials:
   - Webinar announcement;
   - Contact presenters and request short biography and presentation materials;
   - Set up the Adobe webinar with agenda (provided by the EPA WACOR), and presentation materials.
   - Set up and provide support for a webinar dry run with speakers.

The contractor shall provide the EPA WACOR with the above materials for review and approval. Based on the EPA WACOR's comments, through written technical direction, the contractor shall develop the Final Preliminary Agenda, Announcement and Pre-Registration.

The Final Preliminary Agenda, Announcement and Pre-Registration shall be QA/QC'd by the Contractor and reviewed by the EPA WACOR to assure accuracy of information and shall contain no typographical errors and sent electronically to all members and invited speakers.

The EPA WACOR will provide the contractor a list of items for the final agenda. The contractor shall format the final agenda for the meeting. The Contractor shall provide the EPA WACOR a draft of the agenda for review and approval. Based on the EPA WACOR's comments, the contractor shall develop the final agenda.

The final agenda shall be QA/QC'd by the contractor to assure accuracy of information and typographical errors.

2. **Webinar**
   The contractor shall provide logistics support throughout the webinar to:
   - Provide the logistics at the beginning of the webinar;
   - Muting and unmuting the phone lines;
   - Record presentations and discussions for the post-meeting report.

3. **Post-webinar**

   - The contractor shall deliver a draft meeting summary which shall include transcript of audio-taping and the notes taken from the meeting. The EPA WACOR will review the draft summary and provide comments to the contractor. After incorporating the EPA WACOR's comments, the contractor shall distribute the draft meeting summary to the speakers for review before finalizing the meeting summary report. The contractor shall produce a final draft based on the EPA WACOR's and the speakers written comments. The contractor shall send a copy of the final draft electronically, in the format specified, to the EPA WACOR. After receiving comments from the EPA WACOR, the contractor shall finalize the Meeting Summary Report. The summary reports shall be 508 compliant

Workshop Support:
The contractor shall assist EPA WACOR with:

4. **Pre-workshop**
   - The contractor shall contact non-federal speakers and coordinate their travel arrangements (hotel and air travel). The contractor shall provide EPA WACOR rough estimates for approval before contacting speakers.
   - Hotel arrangements shall be done with the hotel chosen by the Workshop organizers, and the airfare shall be done by the most direct and least expensive economy class airfare.
   - The EAP WACOR will provide workshop materials such as Agenda, workshop information sheet, list of participants and presenter biographies, resource list and evaluation form for printing and package preparation.
   - The contractor shall send via email the workshop materials to the EPA Regional representative or meeting location.

Workshop
The contractor shall provide technical support for speakers presenting online (through Adobe webinar), as stated above.

The contractor shall provide logistic support for one workshop planned for May 14 -16, 2018. The contractor shall assist EPA WACOR with:

5. **Pre-workshop**

The contractor shall:

- Do travel arrangements (hotel and air) for non-federal presenters.
- The contractor shall provide EPA WACOR rough estimates for approval before contacting speakers.
- Hotel arrangements shall be done with the hotel chosen by the Workshop organizers, and the airfare shall be done by the most direct and least expensive economy class airfare.
- Prepare the following workshop materials:
    a. Develop the meeting package including evaluation, agenda, biographies, and logistic information.
    b. Contact presenters and request short biography and presentation materials.
    c. Manage presentation files and subsequent updated versions received from speakers.
    d. Review, format, and upload presentations to Adobe Connect for all days of the workshop.
    e. Format the registration list and prepare updated registration lists based on information sent by EPA.
    f. Set up the Adobe Connect webinar with agenda (provided by the EPA WAM), and presentation materials.
    g. Participate in dry run practices.
    h. Print and prepare name tags, and print meeting package handouts.
    i. Ship meeting materials to Region 4 contact prior to the event.

The contractor shall provide the EPA WACOR the above materials review and approval. Based on the EPA WACOR's comments, through written technical direction, the contractor shall set the Adobe Connect webinar.

6. **Workshop Support**

The contractor shall:

- Provide logistic support throughout the webinar by recording the webinar; logistics at the beginning of the webinar; muting and unmuting the phone lines; doing the transition of slides and of presentations; and address the questions posted in the chat box and phone.
    - Develop slides for Adobe Connect for welcome, logistics, round table discussions, and breaks.

7. **Post-workshop**

- Provide chat box questions and comments electronically to the EPA WACOR
- Provide the link to the recording to EPA WACOR afterwards.
- Send PDF versions of all final presentation files to EPA WACOR at the end of the Workshop.

E. SCHEDULE OF BENCHMARKS & DELIVERABLES:

Task/ Subtask	DELIVERABLE	Schedule
1	**Work Plan**	As per Contract EP-C-14-016 requirements
2.1	**Information Quality Guidelines & Information Quality Review**	Due as requested by the EPA WA-COR via written technical direction
3.F	**Criteria Documents for 24 Contaminants**	Due as requested by the EPA WA-COR via written technical direction
3.F.1	**Draft BAFs**	Due as requested by the EPA WA-COR via written technical direction
3.F.1	**Final BAFs**	Due as requested by the EPA WA-COR via written technical direction
4	**Presentations and Follow-up Materials**	Due as requested by the EPA WA-COR via written technical direction
5	**Communication Strategies**	Due as requested by the EPA WA-COR via written technical direction
5.1	**Webinar and Workshop support**	TBD

Draft written deliverable(s) for review by the EPA WACOR shall be prepared in accordance with the schedule in the WA Schedule of Benchmarks and Deliverables.

Final written deliverable(s) shall be furnished in accordance with the schedule in the WA Schedule of Benchmarks and Deliverables, after written comments are received from the EPA WACOR.

TRAVEL: Some travel is anticipated under this work assignment. For cost estimate purposes, assume three one-day trips for one person from contractor location to any site nationwide (use trip to Florida to generate estimate) as identified by the EPA WACOR, with site visit schedules arranged to minimize travel time. All travel under this WA shall be in compliance with contract requirements.

PRINTING
All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

CONTRACTOR IDENTIFICATION
Contractor personnel shall clearly identify corporate affiliation at the start of any meeting or training workshop. While attending EPA-sponsored meetings, conferences, symposia, etc., or while on a Government site, Contractor personnel shall wear a badge that identifies the individual as a contractor employee. Contractor personnel are strictly prohibited from acting as a representative of the Agency meetings, conferences, symposia, etc.

MEETINGS, CONFERENCES, TRANINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than $20,000, shall be obtained by the EPA Contract Level COR as needed and provided to the Contracting Officer. Work under conference-related activities and expenses shall not occur until this approval is obtained and provided by the EPA Contract Level COR.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-15

☐ Other ☒ Amendment Number: 000002

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	

Contractor: TETRA TECH, INC.

Specify Section and paragraph of Contract SOW:

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 07/01/2017 To 06/30/2018

Comments:
The purpose of this amendment is to increase the LOE by 200 hours, per the attached PWS. All other terms and conditions shall remain unchanged.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 08/05/2014 To 06/30/2018		1,975
This Action:		200
Total:		2,175

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Shamima Akhter (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-1341
	FAX Number:	
Project Officer Name: Tanyan Bailey (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-564-3133
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2002
	FAX Number:	

PERFORMANCE WORK STATEMENT
Tetra Tech Contract No. EP-C-14-016
Work Assignment # 3-15 Amendment 2

A. TITLE: Technical Support for Development of Human Health and Aquatic Life Water Quality Criteria

B. Work Assignment Contracting Officer Representative (WA-COR)

NAME: Shamima Akhter
TITLE: Microbiologist
PHONE: 202-566-1341
FAX: 202-566-1140
E-MAIL: Akhter.shamima@epa.gov

Alternate Work Assignment Contracting Officer Representative (AWA-COR)

NAME: John Ravenscroft
TITLE: Microbiologist
PHONE: 202-566-1101
FAX: 202-566-1140
E-MAIL: ravenscroft.john@epa.gov

C. PERIOD OF PERFORMANCE: Date of issuance through 06/30/2018

D TASKS:

Purpose of the Amendment: The purpose of this work assignment amendment is to provide additional LOE (200 hours) to support efforts related to Task 5 Subtask 5.1 (highlighted). All tasks in the work assignment remain the same, no change.

TASK 1 – Work plan and monthly progress reports

The contractor shall develop a detail work plan and cost estimate for tasks outlined in this work assignment. The plan shall contain, but not be limited to, work-flowchart, elaborate schedule, staffing plan and qualifications of proposed staff, budget for task and level of effort (LOE). Prior to the submission of the work plan, the contractor shall consult with the EPA WACOR via conference call to mitigate any potential issues that need clarifications. The contractor shall include information on plans to manage work and control contract costs. All P levels, hours and total dollars for tasks shall be provided and costs greater than $100.00 shall be itemized in detail. The contractor shall provide their job number with all invoices to facilitate their expediency. The plan shall be submitted in accordance with the requirements noted in Contract EP-C-14-016.

This task also includes monthly progress and financial reports. The monthly progress report shall indicate, in a separate QA section, whether significant QA issues have been identified and how they

are being resolved. Monthly financial reports shall include a table with the invoice LOE and costs broken out by the tasks in this work assignment.

TASK 2 – Quality Assurance

This work assignment requires the use of only existing data. This Quality Assurance Section only applies to Subtask F of Task 3. The tasks in this Performance Work Statement (PWS) require the use of secondary data/analyses, model application and fall under the scope of the approved contract-level quality assurance project plan (QAPP) (EP-C-11-009; WA # 4-60) and the supplemental quality assurance project plan (QAPP) Number 403 (Revision 2) (EP-C-14-016, WA# 1-15), February 16, 2016. Consistent with the Agency's quality assurance (QA) requirements, the contractor shall assure the quality and analyses of the secondary data to be used under this work assignment.

Any additional quality assurance requirements shall be addressed in the work plan and monthly progress reports and, if needed, be covered by a work assignment-specific QAPP supplement, which shall be approved by the EPA WACOR & HECD QAC before activities covered by the additional QA requirements through-out performance of Subtask F of this work assignment.

Subtask F in this WA requires the use of secondary data and shall be implemented in accordance with approved project-specific QAPP (EP-C-11-009; WA # 4-60) and the supplemental quality assurance project plan (QAPP) Number 403 (Revision 2) (EP-C-14-016, WA# 1-15), February 16, 2016 to assure that the quality of the primary or secondary data and analyses (including modeling and statistical analyses) are accurate and correct.

Subtask 2.1: Information Quality Guidelines & Information Quality Review

The contractor shall ensure the products developed under this work assignment comply with EPA's Quality System and other related QA policies, the Office of Water's Quality Management Plan. The contractor shall ensure that the information in the products meets the standards of "Objectivity", "Integrity" , "Utility" , "Reproducibility" and "Transparency" as described in the OW Information Quality Guideline (IQG) for each deliverables from this work assignment as they may be used in Agency decision-making and/or will be publicly available documents. If requested by the EPA WACOR via written technical direction, the contractor shall provide a memorandum describing how the planned product(s) developed meet EPA's & OW's Information Quality Guidelines. As part of that memo, the contractor shall document the quality assurance procedures used in developing the deliverables under this Work Assignment. The contractor shall provide the memo at the time it delivers the Final Summary Report. As directed by the WACOR via written technical direction, the contractor shall meet with the WACOR (through teleconference) to discuss the Guidelines and the contractor's role in completing the memo and OW IQG checklist.

TASK 3 – Provide Technical Support

Background: In June 2015, EPA published final updated ambient water quality criteria for the protection of human health for 94 chemical pollutants. Ambient water quality criteria developed by EPA under Clean Water Act section 304(a) represent specific levels of chemicals or conditions in a water body that are not expected to cause adverse effects to human health. EPA is required to develop

and publish water quality criteria that reflect the latest scientific knowledge. These revised human health criteria to reflect the latest scientific information, including updated exposure factors (body weight, drinking water consumption rates, fish consumption rate), bioaccumulation factors, and toxicity factors (reference dose, cancer slope factor). The criteria were updated to follow the current EPA methodology for deriving human health criteria (USEPA 2000). EPA also developed chemical specific science documents for each of the 94 chemical pollutants. The science documents detail the latest scientific information supporting the updated final human health criteria, particularly the updated toxicity and exposure input values.

Due to outstanding technical issues, EPA did not update human health criteria for the following chemical pollutants at this time: antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium (III and VI), copper, manganese, methylmercury, nickel, nitrates, nitrosamines, Nnitrosodibutylamine, N-nitrosodiethylamine, N-nitrosopyrrolidine, N-nitrosodimethylamine, Nnitrosodi- n-propylamine, N-nitrosodiphenylamine, polychlorinated biphenyls (PCBs), selenium, thallium, zinc, or 2,3,7,8-TCDD (dioxin).

Task Description: The contractor shall provide technical support for subtask 3.F as described in the PWS. This includes collection and evaluation of the state-of-the-science for specific contaminants and development of human health water quality criteria. Specific activities shall include conducting literature searches and performing systematic reviews; synthesizing evidence from peer reviewed literature and guideline studies to support hazard identification and dose-response modeling for specific contaminants and groups of contaminants; synthesizing evidence from peer reviewed literature, reports and databases to support human health risk and exposure assessments, including occurrence and prevalence of pollutants and routes of exposure; providing technical support in dose-response modeling and statistical analyses of exposure, toxicity and human health data to derive reference values; assessing the potential impact of contaminants on sensitive populations/life-stages in humans; preparing human health risk assessment documents; evaluating distributional or probabilistic approaches for criteria development; responding to Agency and external reviewers' comments; assisting and conducting webinars/workshops; and developing communication materials and Federal Register notices in supporting OST/HECD's mission in evaluating contaminants to protect public health.

The Contractor shall perform the specific tasks in the PWS in accordance with the appropriate EPA risk assessment guidance and science policy guidance (e.g., 2000 Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health, 2005 Guidelines for Carcinogenic Risk Assessment, 1985 etc.).

Subtask 3. F: The Contractor shall prepare, evaluate, and revise technical support documents for the development of human health ambient water quality criteria. These documents shall include hazard identification, metabolism, exposure assessment, mode of action analysis, dose-response modeling, susceptibility/sensitivity and uncertainty analysis and risk characterization of contaminants to develop human health criteria for various water media (e.g., surface water and drinking water). Additionally, the Contractor shall identify and include information on effective risk management practices and risk reduction approaches when available. The contractor shall evaluate the literature and using EPA methodology determine the appropriate relative source contribution, bioaccumulation factors, and toxicity factors (reference dose, cancer slope factor). EPA has done a preliminary evaluation for updated toxicity values that can be shared.

The contractor shall develop updated ambient water quality criteria for the 24 contaminants (Arsenic, Antimony, Asbestos, Barium, Beryllium, Cadmium, Chromium III, Chromium VI, Copper, Manganese, Methylmercury, Nickel, Nitrate, Nitrosamines, N-nitrosodibutylamine, N-nitrosodiethylamine, N-nitrosodimethylamine, N-nitrosodi-n-propylamine, N-nitrosodiphenylamine, N-nitrosopyrrolidine, Polychlorinated biphenyls (PCBs), Thallium, Selenium, Zinc, 2,3, 7,8-TCDD (dioxin) that were not addressed in EPA's 2015 update.

The contractor shall develop chemical-specific science documents for each of the 24 chemical pollutants. The science documents shall detail the latest scientific information supporting the updated final human health criteria, particularly the updated toxicity and exposure input values described in the June 2015 update (body weight, drinking water consumption rates, fish consumption rate).

Subtask 3.F.1: In addition to the tasks currently described under Subtask 3.F of Work Assignment 2-15, the contractor shall perform the following tasks related to calculating national bioaccumulation factors (BAFs) to support the development of updated human health ambient water quality criteria (HH-AWQC) for the contaminants that were not addressed in EPA's 2015 update:

- Evaluate the variability of BAF and BCF values from literature that the contractor has screened for use in supporting the development of HH-AWQC.
- Compile information recommended for use in EPA's (2007) *Framework for Metals Risk Assessment (*EPA 120/R-07/001. U.S. Environmental Protection Agency, Office of the Science Advisor, Risk Assessment Forum, Washington DC. https://www.epa.gov/sites/production/files/2013-09/documents/metals-risk-assessment-final.pdf) from each of the papers it has collected and screened for use in metals BAF development.
- Evaluate BAFs used in developing EPA's Great Lakes Initiative (GLI) USEPA (U.S. Environmental Protection Agency 1995 Final Water Quality Guidance for the Great Lakes System. U.S. Environmental Protection Agency, Region 5. *Fed. Regist.*, March 23, 1995, 60:15366).
- criteria to determine whether these data and calculations could be used in developing national BAFs for HH-AWQC.
- Perform correlations of metals concentrations and applicable parameters recommended in EPA's (2007) *Framework for Metals Risk Assessment* for discussion with EPA.
- Evaluate existing information on PCBs bioaccumulation and K_{ow} values from scientific literature, EPA's GLI, and additional EPA sources.
- Once final draft BAFs are developed and reviewed by EPA, provide support to EPA in developing a spreadsheet and description of these BAF calculations for public comment.
- Provide support to EPA in responding to public comments received on the final draft BAFs, and preparing final BAF values and documentation to support developing final HH-AWQC.
- Evaluate bioaccumulation data using the screening criteria compilation; this compilation was primarily based on the screening criteria used in the Arnot & Gobas and Environment Canada Databases, EPA's (1995) Great Lakes Initiative (GLI) Guidance, EPA's (1995) GLI Supplementary Information Document (SID) Guidance, 40 CFR 132 – Water Quality Guidance for the Great Lakes System, EPA's (2007) Metals Framework, the U.S. Geological

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The contractor shall assist the WACOR in response to comments and revisions to technical support documents for the development of human health ambient water quality criteria.

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The EPA WACOR will provide the specific details of the technical support needed through written technical direction to the contractor.

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The key technical individual(s) who work on this assignment shall have an expert working knowledge of EPA's guidance, statutory requirements and methodology for the development of 304(a) criteria, health advisories, etc. for the protection of human health. The Contractor shall possess the technical expertise to perform risk assessments, including problem formulation, hazard identification, exposure analysis, risk characterization and risk communication.

TASK 4 – Provide Summary Reports and Presentations

Background: Pre-decisional processes require the collection and analysis of in-depth and issue-specific technical research and analysis. The information is often needed in a summarized format to give progress updates to internal management.

Task Description: The contractor shall provide a variety of summary materials for the purpose of presenting information to and briefing internal management. Given the case-specific nature of these requests, additional details/information regarding what these deliverables shall look like will be provided via written technical direction. All final documents delivered shall be ADA 508-compliant in MS Word, PDF, PowerPoint, Excel or other format as directed via written technical direction by the WACOR.

Subtask A. Fact Sheets
Subtask B. Visual Media

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The contractor shall assist with efforts to communicate information about water quality standards-related actions to the public and key stakeholders. This includes development of communication strategies that identify target audiences, messages to reach those audiences, and products appropriate for each audience, in addition to identifying distribution mechanisms, and evaluating outreach efforts.

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The contractor shall assist EPA WACOR with:

1. **Pre-webinar**
   The contractor shall develop for each webinar the following materials:
   - Webinar announcement;
   - Contact presenters and request short biography and presentation materials;
   - Set up the Adobe webinar with agenda (provided by the EPA WACOR), and presentation materials.
   - Set up and provide support for a webinar dry run with speakers.

The contractor shall provide the EPA WACOR with the above materials for review and approval. Based on the EPA WACOR's comments, through written technical direction, the contractor shall develop the Final Preliminary Agenda, Announcement and Pre-Registration.

The Final Preliminary Agenda, Announcement and Pre-Registration shall be QA/QC'd by the Contractor and reviewed by the EPA WACOR to assure accuracy of information and shall contain no typographical errors and sent electronically to all members and invited speakers.

Background: Pre-decisional processes require the collection and analysis of in-depth and issue-specific technical research and analysis. The information is often needed in a summarized format to give progress updates to internal management.

Task Description: The contractor shall provide a variety of summary materials for the purpose of presenting information to and briefing internal management. Given the case-specific nature of these requests, additional details/information regarding what these deliverables shall look like will be provided via written technical direction. All final documents delivered shall be ADA 508-compliant in MS Word, PDF, PowerPoint, Excel or other format as directed via written technical direction by the WACOR.

Subtask A. Fact Sheets
Subtask B. Visual Media

TASK 5 - Assist with Communication and Outreach

The contractor shall assist with efforts to communicate information about water quality standards-related actions to the public and key stakeholders. This includes development of communication strategies that identify target audiences, messages to reach those audiences, and products appropriate for each audience, in addition to identifying distribution mechanisms, and evaluating outreach efforts.

Sub Task 5.1: Assist and conduct six webinars and one workshop under this current performance period

The contractor shall provide logistics support for two webinars (2) and one (1) workshop under this current performance period ending June 30, 2018. The dates for these webinars and workshops are still to be determined.

Webinar Support:

The contractor shall assist EPA WACOR with:

1. **Pre-webinar**

   The contractor shall develop for each webinar the following materials:

   - Webinar announcement;
   - Contact presenters and request short biography and presentation materials;
   - Set up the Adobe webinar with agenda (provided by the EPA WACOR), and presentation materials.
   - Set up and provide support for a webinar dry run with speakers.

The contractor shall provide the EPA WACOR with the above materials for review and approval. Based on the EPA WACOR's comments, through written technical direction, the contractor shall develop the Final Preliminary Agenda, Announcement and Pre-Registration.

The Final Preliminary Agenda, Announcement and Pre-Registration shall be QA/QC'd by the Contractor and reviewed by the EPA WACOR to assure accuracy of information and shall contain no typographical errors and sent electronically to all members and invited speakers.

The EPA WACOR will provide the contractor a list of items for the final agenda. The contractor shall format the final agenda for the meeting. The Contractor shall provide the EPA WACOR a draft of the agenda for review and approval. Based on the EPA WACOR's comments, the contractor shall develop the final agenda.

The final agenda shall be QA/QC'd by the contractor to assure accuracy of information and typographical errors.

2. **Webinar**
   The contractor shall provide logistics support throughout the webinar to:
   - Provide the logistics at the beginning of the webinar;
   - Muting and unmuting the phone lines;
   - Record presentations and discussions for the post-meeting report.

3. **Post-webinar**

   - The contractor shall deliver a draft meeting summary which shall include transcript of audio-taping and the notes taken from the meeting. The EPA WACOR will review the draft summary and provide comments to the contractor. After incorporating the EPA WACOR's comments, the contractor shall distribute the draft meeting summary to the speakers for review before finalizing the meeting summary report. The contractor shall produce a final draft based on the EPA WACOR's and the speakers written comments. The contractor shall send a copy of the final draft electronically, in the format specified, to the EPA WACOR. After receiving comments from the EPA WACOR, the contractor shall finalize the Meeting Summary Report. The summary reports shall be 508 compliant

Workshop Support:
The contractor shall assist EPA WACOR with:

4. **Pre-workshop**
   - The contractor shall contact non-federal speakers and coordinate their travel arrangements (hotel and air travel). The contractor shall provide EPA WACOR rough estimates for approval before contacting speakers.
   - Hotel arrangements shall be done with the hotel chosen by the Workshop organizers, and the airfare shall be done by the most direct and least expensive economy class airfare.
   - The EAP WACOR will provide workshop materials such as Agenda, workshop information sheet, list of participants and presenter biographies, resource list and evaluation form for printing and package preparation.
   - The contractor shall send via email the workshop materials to the EPA Regional representative or meeting location.

Workshop
The contractor shall provide technical support for speakers presenting online (through Adobe webinar), as stated above.

The contractor shall provide logistic support for one workshop planned for May 14 -16, 2018. The contractor shall assist EPA WACOR with:

5. **Pre-workshop**

The contractor shall:

- Do travel arrangements (hotel and air) for non-federal presenters.
- The contractor shall provide EPA WACOR rough estimates for approval before contacting speakers.
- Hotel arrangements shall be done with the hotel chosen by the Workshop organizers, and the airfare shall be done by the most direct and least expensive economy class airfare.
- Prepare the following workshop materials:
    a. Develop the meeting package including evaluation, agenda, biographies, and logistic information.
    b. Contact presenters and request short biography and presentation materials.
    c. Manage presentation files and subsequent updated versions received from speakers.
    d. Review, format, and upload presentations to Adobe Connect for all days of the workshop.
    e. Format the registration list and prepare updated registration lists based on information sent by EPA.
    f. Set up the Adobe Connect webinar with agenda (provided by the EPA WAM), and presentation materials.
    g. Participate in dry run practices.
    h. Print and prepare name tags, and print meeting package handouts.
    i. Ship meeting materials to Region 4 contact prior to the event.

The contractor shall provide the EPA WACOR the above materials review and approval. Based on the EPA WACOR's comments, through written technical direction, the contractor shall set the Adobe Connect webinar.

6. **Workshop Support**

The contractor shall:

- Provide logistic support throughout the webinar by recording the webinar; logistics at the beginning of the webinar; muting and unmuting the phone lines; doing the transition of slides and of presentations; and address the questions posted in the chat box and phone.
    - Develop slides for Adobe Connect for welcome, logistics, round table discussions, and breaks.

7. **Post-workshop**

- Provide chat box questions and comments electronically to the EPA WACOR
- Provide the link to the recording to EPA WACOR afterwards.
- Send PDF versions of all final presentation files to EPA WACOR at the end of the Workshop.

E. SCHEDULE OF BENCHMARKS & DELIVERABLES:

Task/ Subtask	DELIVERABLE	Schedule
1	**Work Plan**	As per Contract EP-C-14-016 requirements
2.1	**Information Quality Guidelines & Information Quality Review**	Due as requested by the EPA WA-COR via written technical direction
3.F	**Criteria Documents for 24 Contaminants**	Due as requested by the EPA WA-COR via written technical direction
3.F.1	**Draft BAFs**	Due as requested by the EPA WA-COR via written technical direction
3.F.1	**Final BAFs**	Due as requested by the EPA WA-COR via written technical direction
4	**Presentations and Follow-up Materials**	Due as requested by the EPA WA-COR via written technical direction
5	**Communication Strategies**	Due as requested by the EPA WA-COR via written technical direction
5.1	**Webinar and Workshop support**	TBD

Draft written deliverable(s) for review by the EPA WACOR shall be prepared in accordance with the schedule in the WA Schedule of Benchmarks and Deliverables.

Final written deliverable(s) shall be furnished in accordance with the schedule in the WA Schedule of Benchmarks and Deliverables, after written comments are received from the EPA WACOR.

TRAVEL: Some travel is anticipated under this work assignment. For cost estimate purposes, assume three one-day trips for one person from contractor location to any site nationwide (use trip to Florida to generate estimate) as identified by the EPA WACOR, with site visit schedules arranged to minimize travel time. All travel under this WA shall be in compliance with contract requirements.

PRINTING
All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

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Contractor personnel shall clearly identify corporate affiliation at the start of any meeting or training workshop. While attending EPA-sponsored meetings, conferences, symposia, etc., or while on a Government site, Contractor personnel shall wear a badge that identifies the individual as a contractor employee. Contractor personnel are strictly prohibited from acting as a representative of the Agency meetings, conferences, symposia, etc.

MEETINGS, CONFERENCES, TRANINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than $20,000, shall be obtained by the EPA Contract Level COR as needed and provided to the Contracting Officer. Work under conference-related activities and expenses shall not occur until this approval is obtained and provided by the EPA Contract Level COR.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-15

☐ Other ☒ Amendment Number: 000003

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Tech Supprot for ALWQC

Contractor: TETRA TECH, INC.

Specify Section and paragraph of Contract SOW:

Purpose:
☐ Work Assignment
☒ Work Assignment Amendment
☐ Work Plan Approval
☐ Work Assignment Close-Out
☐ Incremental Funding

Period of Performance: From 07/01/2017 To 06/30/2018

Comments:
The purpose of this Amendment 3 is to increase LOE (605 hours) and to add tasks on Subtask 3.F.1 (highlighted in the attached PWS).

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 08/05/2014 To 06/30/2018		2,175
This Action:		605
Total:		2,780

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Shamima Akhter (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-1341
	FAX Number:	
Project Officer Name: Tanyan Bailey (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-564-3133
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2002
	FAX Number:	

PERFORMANCE WORK STATEMENT
Tetra Tech Contract No. EP-C-14-016
Work Assignment # 3-15 Amendment 3

A. TITLE: Technical Support for Development of Human Health and Aquatic Life Water Quality Criteria

B. Work Assignment Contracting Officer Representative (WA-COR)

NAME: Shamima Akhter
TITLE: Microbiologist
PHONE: 202-566-1341
FAX: 202-566-1140
E-MAIL: Akhter.shamima@epa.gov

Alternate Work Assignment Contracting Officer Representative (AWA-COR)

NAME: John Ravenscroft
TITLE: Microbiologist
PHONE: 202-566-1101
FAX: 202-566-1140
E-MAIL: ravenscroft.john@epa.gov

C. PERIOD OF PERFORMANCE: Date of issuance through 06/30/2018

D TASKS:

Purpose: The purpose of this Amendment 3 is to increase LOE (605 hours) and to add tasks on Subtask 3.F.1 (highlighted)

TASK 1 – Work plan and monthly progress reports

The contractor shall develop a detail work plan and cost estimate for tasks outlined in this work assignment. The plan shall contain, but not be limited to, work-flowchart, elaborate schedule, staffing plan and qualifications of proposed staff, budget for task and level of effort (LOE). Prior to the submission of the work plan, the contractor shall consult with the EPA WACOR via conference call to mitigate any potential issues that need clarifications. The contractor shall include information on plans to manage work and control contract costs. All P levels, hours and total dollars for tasks shall be provided and costs greater than $100.00 shall be itemized in detail. The contractor shall provide their job number with all invoices to facilitate their expediency. The plan shall be submitted in accordance with the requirements noted in Contract EP-C-14-016.

This task also includes monthly progress and financial reports. The monthly progress report shall indicate, in a separate QA section, whether significant QA issues have been identified and how they are being resolved. Monthly financial reports shall include a table with the invoice LOE and costs broken out by the tasks in this work assignment.

TASK 2 – Quality Assurance

This work assignment requires the use of only existing data. This Quality Assurance Section only applies to Subtask F of Task 3. The tasks in this Performance Work Statement (PWS) require the use of secondary data/analyses, model application and fall under the scope of the approved contract-level quality assurance project plan (QAPP) (EP-C-11-009; WA # 4-60) and the supplemental quality assurance project plan (QAPP) Number 403 (Revision 2) (EP-C-14-016, WA# 1-15), February 16, 2016. Consistent with the Agency's quality assurance (QA) requirements, the contractor shall assure the quality and analyses of the secondary data to be used under this work assignment.

Any additional quality assurance requirements shall be addressed in the work plan and monthly progress reports and, if needed, be covered by a work assignment-specific QAPP supplement, which shall be approved by the EPA WACOR & HECD QAC before activities covered by the additional QA requirements through-out performance of Subtask F of this work assignment.

Subtask F in this WA requires the use of secondary data and shall be implemented in accordance with approved project-specific QAPP (EP-C-11-009; WA # 4-60) and the supplemental quality assurance project plan (QAPP) Number 403 (Revision 2) (EP-C-14-016, WA# 1-15), February 16, 2016 to assure that the quality of the primary or secondary data and analyses (including modeling and statistical analyses) are accurate and correct.

Subtask 2.1: Information Quality Guidelines & Information Quality Review

The contractor shall ensure the products developed under this work assignment comply with EPA's Quality System and other related QA policies, the Office of Water's Quality Management Plan. The contractor shall ensure that the information in the products meets the standards of "Objectivity", "Integrity","Utility" , "Reproducibility" and "Transparency" as described in the OW Information Quality Guideline (IQG) for each deliverables from this work assignment as they may be used in Agency decision-making and/or will be publicly available documents. If requested by the EPA WACOR via written technical direction, the contractor shall provide a memorandum describing how the planned product(s) developed meet EPA's & OW's Information Quality Guidelines. As part of that memo, the contractor shall document the quality assurance procedures used in developing the deliverables under this Work Assignment. The contractor shall provide the memo at the time it delivers the Final Summary Report. As directed by the WACOR via written technical direction, the contractor shall meet with the WACOR (through teleconference) to discuss the Guidelines and the contractor's role in completing the memo and OW IQG checklist.

TASK 3 – Provide Technical Support

Background: In June 2015, EPA published final updated ambient water quality criteria for the protection of human health for 94 chemical pollutants. Ambient water quality criteria developed by EPA under Clean Water Act section 304(a) represent specific levels of chemicals or conditions in a water body that are not expected to cause adverse effects to human health. EPA is required to develop and publish water quality criteria that reflect the latest scientific knowledge. These revised human health criteria to reflect the latest scientific information, including updated exposure factors (body

weight, drinking water consumption rates, fish consumption rate), bioaccumulation factors, and toxicity factors (reference dose, cancer slope factor). The criteria were updated to follow the current EPA methodology for deriving human health criteria (USEPA 2000). EPA also developed chemical specific science documents for each of the 94 chemical pollutants. The science documents detail the latest scientific information supporting the updated final human health criteria, particularly the updated toxicity and exposure input values.

Due to outstanding technical issues, EPA did not update human health criteria for the following chemical pollutants at this time: antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium (III and VI), copper, manganese, methylmercury, nickel, nitrates, nitrosamines, Nnitrosodibutylamine, N-nitrosodiethylamine, N-nitrosopyrrolidine, N-nitrosodimethylamine, Nnitrosodi- n-propylamine, N-nitrosodiphenylamine, polychlorinated biphenyls (PCBs), selenium, thallium, zinc, or 2,3,7,8-TCDD (dioxin).

Task Description: The contractor shall provide technical support for subtask 3.F as described in the PWS. This includes collection and evaluation of the state-of-the-science for specific contaminants and development of human health water quality criteria. Specific activities shall include conducting literature searches and performing systematic reviews; synthesizing evidence from peer reviewed literature and guideline studies to support hazard identification and dose-response modeling for specific contaminants and groups of contaminants; synthesizing evidence from peer reviewed literature, reports and databases to support human health risk and exposure assessments, including occurrence and prevalence of pollutants and routes of exposure; providing technical support in dose-response modeling and statistical analyses of exposure, toxicity and human health data to derive reference values; assessing the potential impact of contaminants on sensitive populations/life-stages in humans; preparing human health risk assessment documents; evaluating distributional or probabilistic approaches for criteria development; responding to Agency and external reviewers' comments; assisting and conducting webinars/workshops; and developing communication materials and Federal Register notices in supporting OST/HECD's mission in evaluating contaminants to protect public health.

The Contractor shall perform the specific tasks in the PWS in accordance with the appropriate EPA risk assessment guidance and science policy guidance (e.g., 2000 Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health, 2005 Guidelines for Carcinogenic Risk Assessment, 1985 etc.).

Subtask 3. F: The Contractor shall prepare, evaluate, and revise technical support documents for the development of human health ambient water quality criteria. These documents shall include hazard identification, metabolism, exposure assessment, mode of action analysis, dose-response modeling, susceptibility/sensitivity and uncertainty analysis and risk characterization of contaminants to develop human health criteria for various water media (e.g., surface water and drinking water). Additionally, the Contractor shall identify and include information on effective risk management practices and risk reduction approaches when available. The contractor shall evaluate the literature and using EPA methodology determine the appropriate relative source contribution, bioaccumulation factors, and toxicity factors (reference dose, cancer slope factor). EPA has done a preliminary evaluation for updated toxicity values that can be shared.

The contractor shall develop updated ambient water quality criteria for the 24 contaminants (Arsenic, Antimony, Asbestos, Barium, Beryllium, Cadmium, Chromium III, Chromium VI, Copper, Manganese, Methylmercury, Nickel, Nitrate, Nitrosamines, N-nitrosodibutylamine, N-nitrosodiethylamine, N-nitrosodimethylamine, N-nitrosodi-n-propylamine, N-nitrosodiphenylamine, N-nitrosopyrrolidine, Polychlorinated biphenyls (PCBs), Thallium, Selenium, Zinc, 2,3, 7,8-TCDD (dioxin) that were not addressed in EPA's 2015 update.

The contractor shall develop chemical-specific science documents for each of the 24 chemical pollutants. The science documents shall detail the latest scientific information supporting the updated final human health criteria, particularly the updated toxicity and exposure input values described in the June 2015 update (body weight, drinking water consumption rates, fish consumption rate).

Subtask 3.F.1: In addition to the tasks currently described under Subtask 3.F of Work Assignment 2-15, the contractor shall perform the following tasks related to calculating national bioaccumulation factors (BAFs) to support the development of updated human health ambient water quality criteria (HH-AWQC) for the contaminants that were not addressed in EPA's 2015 update:

- Evaluate the variability of BAF and BCF values from literature that the contractor has screened for use in supporting the development of HH-AWQC.
- Compile information recommended for use in EPA's (2007) *Framework for Metals Risk Assessment* (EPA 120/R-07/001. U.S. Environmental Protection Agency, Office of the Science Advisor, Risk Assessment Forum, Washington DC. https://www.epa.gov/sites/production/files/2013-09/documents/metals-risk-assessment-final.pdf) from each of the papers it has collected and screened for use in metals BAF development.
- Evaluate BAFs used in developing EPA's Great Lakes Initiative (GLI) USEPA (U.S. Environmental Protection Agency 1995 Final Water Quality Guidance for the Great Lakes System. U.S. Environmental Protection Agency, Region 5. *Fed. Regist.*, March 23, 1995, 60:15366).
- criteria to determine whether these data and calculations could be used in developing national BAFs for HH-AWQC.
- Perform correlations of metals concentrations and applicable parameters recommended in EPA's (2007) *Framework for Metals Risk Assessment* for discussion with EPA.
- Evaluate existing information on PCBs bioaccumulation and K_{ow} values from scientific literature, EPA's GLI, and additional EPA sources.
- Once final draft BAFs are developed and reviewed by EPA, provide support to EPA in developing a spreadsheet and description of these BAF calculations for public comment.
- Provide support to EPA in responding to public comments received on the final draft BAFs, and preparing final BAF values and documentation to support developing final HH-AWQC.
- Evaluate bioaccumulation data using the screening criteria compilation; this compilation was primarily based on the screening criteria used in the Arnot & Gobas and Environment Canada Databases, EPA's (1995) Great Lakes Initiative (GLI) Guidance, EPA's (1995) GLI Supplementary Information Document (SID) Guidance, 40 CFR 132 – Water Quality Guidance for the Great Lakes System, EPA's (2007) Metals Framework, the U.S. Geological Survey's Open File Report 00-416 on the DYNBAM Model for Selenium, and EPA's (2003) Arsenic BAF Compilation.

- Evaluate time 0 and background metal level concentrations provided in original bioaccumulation data sources for use in determining "essential metal concentrations."

- Identify percent moisture information for organisms in the bioaccumulation spreadsheet for which dry weight concentration values were provided.

- Perform QC checks of collected percent moisture information.

- Prepare ADA 508-compliant versions of final criteria documents.

- Develop a final BAF calculation spreadsheet and companion document for the updated 24 criteria chemicals.

- **Technical Edits for GenX and Perfluorobutane Sulfonic Acid (PFBS) Toxicity Values Documents**

- **Technical Editing**
- The contractor shall review the document (provided separately) to ensure correct grammar, spelling, and punctuation; consistency of capitalization, spelling, and hyphenation; agreement of subjects and verbs; check materials, especially tables, figures, units of measure, headings, etc. for consistency of style and format; check placement of tables and figures; and many other details of style. The contractor shall cross-check references cited in the document to ensure that only those references are included in the reference list. References in the reference list shall be reviewed to ensure that they are complete, accurate, and properly formatted.

- The contractor shall make any necessary revisions and/or formatting corrections to documents. The contractor shall use features of MS Word as needed (e.g., indexing, generated Table of Contents, styles, text art, graphics, etc.). Placement of figures and tables, pagination, and visual checks of page layout shall be completed before a document is submitted to the EPA. Revisions made to documents shall be proofread to ensure consistency and accuracy.

- The contractor shall submit a draft final version of the MS Word versions of the documents for EPA review. Once given technical direction from EPA that the MS Word versions of the two documents are final, the contractor shall convert the MS Word documents to 508-compliant PDF files.

The contractor shall assist the WACOR in response to comments and revisions to technical support documents for the development of human health ambient water quality criteria.

Technical Editing: The contractor shall provide technical editing of varying degrees. The contractor shall review reports for subtask F of task 3 to ensure correct grammar, spelling, and punctuation; consistency of capitalization, spelling, and hyphenation; agreement of subjects and verbs; check materials, especially tables, figures, units of measure, headings, etc. for consistency of style and

format; check placement of tables and figures; and many other details of style. The Contractor shall cross-check references cited in the document to ensure that only those references are included in the reference list. References in the reference list shall be reviewed to ensure that they are complete, accurate, and properly formatted.

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The EPA WACOR will provide the specific details of the technical support needed through written technical direction to the contractor.

Technical Expertise Required:
The key technical individual(s) who work on this assignment shall have an expert working knowledge of EPA's guidance, statutory requirements and methodology for the development of 304(a) criteria, health advisories, etc. for the protection of human health. The Contractor shall possess the technical expertise to perform risk assessments, including problem formulation, hazard identification, exposure analysis, risk characterization and risk communication.

TASK 4 – Provide Summary Reports and Presentations

Background: Pre-decisional processes require the collection and analysis of in-depth and issue-specific technical research and analysis. The information is often needed in a summarized format to give progress updates to internal management.

Task Description: The contractor shall provide a variety of summary materials for the purpose of presenting information to and briefing internal management. Given the case-specific nature of these requests, additional details/information regarding what these deliverables shall look like will be provided via written technical direction. All final documents delivered shall be ADA 508-compliant in MS Word, PDF, PowerPoint, Excel or other format as directed via written technical direction by the WACOR.

Subtask A. Fact Sheets
Subtask B. Visual Media

TASK 5 - Assist with Communication and Outreach

The contractor shall assist with efforts to communicate information about water quality standards-related actions to the public and key stakeholders. This includes development of communication strategies that identify target audiences, messages to reach those audiences, and products appropriate for each audience, in addition to identifying distribution mechanisms, and evaluating outreach efforts.

Sub Task 5.1: <u>Assist and conduct six webinars and one workshop under this current performance period</u>

The contractor shall provide logistics support for two webinars (2) and one (1) workshop under this current performance period ending June 30, 2018. The dates for these webinars and workshops are still to be determined.

Webinar Support:

The contractor shall assist EPA WACOR with:

1. **Pre-webinar**

   The contractor shall develop for each webinar the following materials:

   - Webinar announcement;
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   - Provide the logistics at the beginning of the webinar;
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Contractor personnel shall clearly identify corporate affiliation at the start of any meeting or training workshop. While attending EPA-sponsored meetings, conferences, symposia, etc., or while on a Government site, Contractor personnel shall wear a badge that identifies the individual as a contractor employee. Contractor personnel are strictly prohibited from acting as a representative of the Agency meetings, conferences, symposia, etc.

MEETINGS, CONFERENCES, TRANINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than $20,000, shall be obtained by the EPA Contract Level COR as needed and provided to the Contracting Officer. Work under conference-related activities and expenses shall not occur until this approval is obtained and provided by the EPA Contract Level COR.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-16

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Fish and Shellfish Newsletter

Contractor	Specify Section and paragraph of Contract SOW
TETRA TECH, INC.	3.12

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 07/12/2017 To 06/30/2018

Comments:

[ ] Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2): [ ]

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 08/05/2014 To 06/30/2018		
This Action:		
Total:		

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Sharon Frey (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 202-566-1480	
	FAX Number:	
Project Officer Name: Thomas Gardner (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 202-566-0386	
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 513-487-2002	
	FAX Number:	

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-16

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Fish and Shellfish Newsletter

Contractor	Specify Section and paragraph of Contract SOW
TETRA TECH, INC.	3.12

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 07/12/2017 To 06/30/2018

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2): ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period:	Cost/Fee:	LOE:
08/05/2014 To 06/30/2018		
This Action:		
Total:		

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee	LOE:
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name: Sharon Frey (Signature) (Date)		Branch/Mail Code: Phone Number: 202-566-1480 FAX Number:
Project Officer Name: Thomas Gardner (Signature) (Date)		Branch/Mail Code: Phone Number: 202-566-0386 FAX Number:
Other Agency Official Name (Signature) (Date)		Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Courtney Stallworth (Signature) (Date)		Branch/Mail Code: Phone Number: 513-487-2002 FAX Number:

SCOPE OF WORK
Tetra Tech Contract EP-C-14-016
Work Assignment 3-16

TITLE: **Fish and Shellfish Program Newsletter**

EPA Conference Code Number: MM302803

WORK ASSIGNMENT COR:

Sharon Frey
Standards & Health Protection Division
US EPA (4305T)
Washington DC 20460
202-564-5257
202-566-0409 FAX

CDR Samantha Fontenelle (Alternate)
202-566-2083
202-566-0409 FAX

PERIOD OF PERFORMANCE: July 12, 2017 through June 30, 2018

ESTIMATED LOE: **612** hours

I. Background and Scope of Work

This Work Assignment will support EPA's Fish and Shellfish Program by producing the Fish and Shellfish Program Newsletter.

II. Tasks

All tasks in this work assignment occur under Section 3.12 Public Outreach and Technology Transfer of the contract performance work statement.

Task 1: Work Plan and Kickoff Meeting

The contractor shall submit a work plan to the Agency as per the contract requirements. The contractor shall present its technical approach and budget addressing all the Tasks in this work assignment.

Within 1 week following workplan approval, the contractor shall organize a conference call with EPA's Work Assignment Contracting Officer Representative (WA-COR) to discuss all tasks and the schedule of deliverables.

Task 2 – Fish and Shellfish Program Newsletter

The contractor shall assist EPA in writing and publishing the Fish and Shellfish Program Newsletter. Tasks include:

Task 1 – Kickoff Meeting: Prior to initiating work on the newsletter, the Contractor shall attend a Kickoff meeting with EPA to discuss the format and content of the newsletter.

Task 2 – Develop Monthly Fish and Shellfish Program Newsletter

Newsletter Template: Based on the discussions from the Kickoff meeting, the Contractor shall develop a newsletter template and submit it to the EPA WACOR for review and approval.

Monthly Newsletter: The Contractor shall prepare a monthly fish and shellfish program newsletter. On the last Monday of each month, the Contractor shall submit all article summaries from the month to the WA COR for approval before incorporating them into a final newsletter.

The newsletter shall consist of the following topics. Note that it is possible that each issue may not include all of the following:

Recent Advisory News shall include news from the popular press, state websites, etc. on recent relevant fish and shellfish related topics.

Upcoming Meetings and Conferences shall include national and international fish and shellfish conferences.

Recent Publications shall include verbatim abstracts, citations, or both from peer reviewed journals and titles and citations only for publications that are copyright protected.

Recently Awarded Research shall include verbatim description of the research that is planned.

News from EPA shall include topics of interest to the audience that EPA is working on (e.g., fish and shellfish research, peer reviewed publications, guidance, new information posted on the EPA website). *EPA shall prepare and provide this information to the Contractor.*

News from States and Tribes, State and Tribal News shall facilitate information sharing of newsworthy information between the states and tribes.

Additional Information shall include links to the EPA Fish Program web content areas – microsite and technical resources pages – and a list of fish team members, and shellfish contacts if necessary, with email contact, and Agency address.

News from other federal agencies and departments, non-governmental entities, and international organizations shall include topics of interest to the audience that external-to-EPA organizations are working on (e.g., fish and shellfish research, guidance, new information posted on the EPA website).

III. Deliverables

All final reports, data, and maps shall be provided to the WA COR electronically. Electronic files shall be provided in PDF and in the original software. The Contractor shall use Microsoft Office and Adobe Acrobat software for developing any and all electronic copies of deliverables associated with the work assignment. All documents to be posted on the EPA's website shall be web-ready and 508-compliant.

Task/Subtask	Deliverables	Due Date
1 Work Plan	**Work Plan**	As per the contract requirements
2 Fish and Shellfish Program Newsletter		
	Draft of all articles from the month in the layout of the newsletter	One week before the end of each month for the duration of the work assignment
	Web-ready monthly newsletter	First Monday of each month

III. Management Controls:
All duplication shall be in accordance with clause H.2 (Printing) of the contract.

IV. Travel:
No travel is anticipated under this work assignment.

V. Meetings, Conferences, Training Events, Award Ceremonies and Receptions:
All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than $20,000, shall be obtained by the WA-COR as needed and provided to the Contracting Officer. Work under conference related activities and expenses shall not occur until this approval is obtained and provided by the WA-COR.

VI. Technical Direction:
Only the WA- COR or the Alternate WACOR in the WACOR's absence is authorized to provide written technical direction. Technical direction must be within scope of the performance work statement and includes: (1) Direction to the contractor which assists the contractor in accomplishing the Performance Work Statement (PWS), (2) Comments on and approval of reports or other deliverables. Technical direction will be issued in writing or confirmed in writing within three calendar days after verbal issuance. One copy of the technical direction memorandum will be forwarded to the CO.

VII. Contractor Identification:
Contractor personnel shall clearly identify corporate affiliation at the start of any meeting. While attending EPA-sponsored meetings, conferences, symposia, etc. or while on a Government site,

Contractor personnel shall wear a badge which identifies the individual as a contractor employee. Contractor personnel are strictly prohibited from acting as a representative of the Agency at meetings, conferences, symposia, etc.

VIII. Special Conditions:

The Contractor shall use Microsoft Office and Adobe Acrobat software for developing any and all electronic copies of deliverables associated with the work assignment. All documents to be posted on the EPA's website shall be web-ready and 508-compliant.

IX. Notice Regarding Guidance Provided Under This Work Assignment:

Guidance is strictly limited to technical and analytical support. The contractor shall not engage in activities of an inherently governmental nature such as the following:

(1) Formulation of Agency policy
(2) Selection of Agency priorities
(3) Development of Agency regulations

Should the contractor receive any instruction from an EPA staff person that the contractor ascertains to fall into any of these categories or goes beyond the scope of the contract or work assignment, the contractor shall immediately contact the EPA WA-COR and the EPA CO.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-16

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	

Contractor: TETRA TECH, INC.

Specify Section and paragraph of Contract SOW:

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 07/12/2017 To 12/19/2017

Comments:
The project for this work assignment has ended. This amendment closes this work assignment.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 08/05/2014 To 06/30/2018		
This Action:		
Total:		

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Sharon Frey (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-1480
	FAX Number:	
Project Officer Name: Tanyan Bailey (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-564-3133
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2002
	FAX Number:	

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-19

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Technical Support to Assess

Contractor	Specify Section and paragraph of Contract SOW
TETRA TECH, INC.	4, 5, 6, 10, 12, 13, 14

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 07/06/2017 To 06/30/2018

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 08/05/2014 To 06/30/2018		0
This Action:		2,285
Total:		2,285

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Luis Cruz (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1095 FAX Number:
Project Officer Name: Thomas Gardner (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-0386 FAX Number:
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2002 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-19

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Technical Support to Assess

Contractor	Specify Section and paragraph of Contract SOW
TETRA TECH, INC.	4, 5, 6, 10, 12, 13, 14

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 07/06/2017 To 06/30/2018

Comments:

[ ] Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2): [ ]

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Contract Period:	Cost/Fee:	LOE:
	08/05/2014 To 06/30/2018		0
This Action:			2,285
Total:			2,285

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Luis Cruz (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-1095
	FAX Number:	
Project Officer Name: Thomas Gardner (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-0386
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2002
	FAX Number:	

Performance Work Statement
EPA Contract EP-C-14-016
Work Assignment 3-19

I. **TITLE: Technical Support to Assess the Opportunities and Implications of Advanced and Emerging Monitoring Technologies on Assessing, Managing and Communicating Ecological and Human Health Impacts of Contaminants in Water**

II. **WORK ASSIGNMENT CONTRACTING OFFICER REPRESENTATIVE (WACOR):**

Luis Cruz
U.S. EPA, Office of Water
1200 Pennsylvania Ave., N.W., 4305T
Washington, DC 20460
Phone: (202) 566-1095
E-mail : cruz.luis@epa.gov

ALTERNATE WACOR :

Thomas Gardner
U.S. EPA, Office of Water
1200 Pennsylvania Ave., N.W., 4305T
Washington, DC 20460
Phone: (202) 566-0386
E-mail : gardner.thomas@epa.gov

III. **PERFORMANCE PERIOD: July 3, 2017** - June 30, 2018

IV. **BACKGROUND:**

Information and data about water quality is central to EPA's mission to protect and restore water resources, as guided by the Clean Water Act and Safe Drinking Water Act. This information is required for understanding the ecological and human health effects of pollutants or contaminants and in developing strategies and programs (e.g. water quality standards) that reduce risks to human health and the environment.

Traditionally, the measurement of water quality information has involved the collection of water samples in the field, and transport to a laboratory for subsequent water quality analysis. Often, the water quality analysis would take days or even weeks to obtain the results, thus limiting the timeliness of the data to inform management decisions by EPA, State or local public health authorities.

Yet monitoring technologies for the identification and quantification of pollutants in water are rapidly advancing. The surge in water quality sensor technology has a broad range of current and potential uses including environmental assessment, water quality standards development and assessment, citizen engagement, and regulatory compliance.

EPA's Water Technology and Innovation Blueprint (April 2014) frames the "market opportunity" for new monitoring technology:

> *Newer monitoring technologies, such as improved water quality sensor technology, remote sensing, and satellite imagery, hold opportunities to generate substantially more data at lower cost. New sensor technology coupled with improved telemetry and information technology can make data on water quantity and water quality available for a broader range of applications, such as water pollutant trading, treatment plant operations, resource and compliance targeting. Sensor and laboratory advances also provide opportunity for reducing the overall cost of water quality monitoring. New tools are being developed to store, communicate, analyze, and visualize the vast data streams.*

Considerable dialogue around these ideas is occurring within and external to EPA, including routine meetings of the Forum for Environmental Measurement (FEM), E-Enterprise efforts and the ORD-OECA Advanced Monitoring efforts. In this context, the Office of Water can and must address key technical, policy and regulatory issues related to advanced monitoring sensors, and continuous data.

EPA's Office of Water needs a clear and coordinated strategy to: 1) *characterize* the state of development of new water quality sensor technologies; 2) *consider* how this emerging technology can positively inform and negatively impact EPA's obligations to assess, manage and communicate the ecological and human health risks; 3) *assure* that appropriate and adequate procedures are in place to verify the results from new monitoring techniques; 4) *reconcile and integrate* the results of near-continuous monitoring with traditional discrete water quality data; and 5) *anticipate* external and internal EPA actions that warrant coordination.

This Work Assignment will perform a variety of specific subtasks to support the Office of Science and Technology, and the Office of Water more broadly, in the exploration and understanding of options and strategies related to remote, continuous, and sensor monitoring technologies. Specifically, this Work Assignment will provide contractor support for the Office of Water and Office of Science and Technology under Contract EP-C-14-016 in the following statement of work areas:

4. Technical guidance, report development, and general program analysis
5. Compilation and analysis of national and international environmental data
6. Development and application of methods
10. Workshops, conferences, training and logistical support
12. Public outreach and technology transfer
13. Compilation, categorization and summarization of comments; and
14. Preparation of presentation materials

Tasks outlined in this Work Assignment may build upon support provided through technical directions to the Contractor EP-C14-016, Work Assignment 2-03.

The level of effort of professional hours required to complete the tasks outlined in this Performance Work Statement is estimated to be 2,285 hours.

V. STATEMENT OF WORK:

Task 0: Develop a Work Plan

The Contractor shall prepare a Work Plan in response to the Work Assignment Request for Work Assignment 3-19. The work plan shall include a schedule, staffing plan, level of effort (LOE), and cost estimate for each task, the contractor's key assumptions on which staffing plan and budget are based, and qualifications of proposed staff.

The Contractor shall provide management and administrative support related to this Work Assignment throughout its duration. Such support shall include, but not be limited to, the following:

- Perform financial oversight and prepare progress reports for the Contractor Work Assignment Leader.
- Track progress toward completion of Work Assignment Tasks against costs and LOE.
- Perform quality assurance checks of products produced by the Contractor staff.
- Resolve internal (Contractor) problems associated with completion of tasks or costs.
- Resolve external (Contractor and EPA) problems associated with completion of tasks or costs, to include conference calls and meetings with EPA.
- Prepare monthly progress reports for EPA.

Task 1: Kickoff Meeting and Monthly Progress Reports

The Contractor shall participate in a Work Assignment kickoff meeting with EPA staff in person within five days of Work Assignment award. The purpose of the kickoff meeting is to discuss and clarify expectations, answer any questions, and identify and resolve any potential problems. The kickoff meeting shall include a discussion of the key staff who could be involved in the individual tasks and any specific expertise they could provide to the types of work described in each task.

The purpose of the kickoff meeting is not to change any terms and conditions of the Work Assignment and kickoff meeting participants shall not take action that in any way alters the Work Assignment. The Contractor shall provide notes from the kickoff meeting to the Work Assignment COR (WACOR) or person(s) designated by the WACOR within two business days.

Task 2: Quality Assurance

For each final deliverable, the Contractor shall provide a statement that all QA procedures were followed, and a statement describing any needed changes to those procedures, if necessary. The

Contractor shall also prepare a quality assurance documentation report when work is finished under this Work Assignment.

Some tasks in this Work Assignment may require the use of secondary data and shall be implemented in accordance with an approved quality assurance project plan (QAPP). No primary data creation is expected but if it happens the QAPP shall be revised. The Contractor shall develop and submit a QAPP to the Quality Assurance Officer, Contract Level COR and the EPA WACOR and shall assure that the quality of the primary or secondary data and analyses are accurate and correct. The purpose of the QAPP plan shall be to document Quality Assurance protocols in accordance with Office of Water Information Quality Guidelines: Pre-Dissemination Review Guidance and Checklists. If needed, the Contractor shall hold a conference call with the EPA WACOR and person(s) designated by the WA COR prior to submission of the QAPP to discuss any issues needing clarification.

Task 3: Provide Technical Support and Prepare a White Paper
This task involves framing and describing the overarching context, business case, and implications (positive and negative) of a new realm of water quality sensors that provide verifiable and accurate data on pollutants/contaminants that pose ecological and human health risks. The white paper shall represent EPA's Office of Water's understanding of the issues and necessitate close coordination and vetting across the entirety of OW programs (e.g. Clean Water Act and Safe Drinking Water Act). The White Paper shall address the following elements:

A. Identify the current and future potential uses of Remote/Continuous/Sensor Monitoring Technologies in the water sphere, specifically as they relate to OW and the National Water Program. The contractor shall identify and describe the types and attributes of different existing uses of remote/continuous/sensor monitoring (literature reviews, web-based searches, permit compliance, routine data collection, research, and discussions with experts in this field). The result of the task shall be in a form that can be included in the draft and final White Paper.

B. Identify the Spectrum of Technical, Regulatory, Policy Issues. The contractor shall identify and outline opportunities, barriers to and incentives for remote, continuous, and sensor monitoring technologies applicable to the National Water Program. In addition, the contractor shall review an existing outline in order to identify and frame responses to the issues that are presented by the proliferation of remote, continuous, and sensor monitoring technologies for the Office of Water. The result of the task shall be in a form that can be included in the draft and final White Paper.

C. Support the Development of Options and Strategies for Assessing and Validating Remote, Continuous, and Sensor Monitoring Technologies for Water. The Contractor shall assist EPA in identifying existing and potential approaches and strategies to assess and validate emerging sensor and continuous monitoring technologies.

D. Prepare a White Paper describing the issues that are presented by the proliferation of remote, continuous, and sensor monitoring technologies for the Office of Water. The Contractor shall develop a draft white paper that outlines 1) current and future uses of remote/continuous/sensor monitoring technologies; 2) technical, regulatory and policy issues of remote/continuous/sensor monitoring technologies; 3) options and strategies of remote/continuous/sensor monitoring technologies; and the current state of science of remote/continuous/sensor monitoring technologies for nutrients in water. Support may include preparing the full draft document, collating, compiling, and revising the document based on internal comments; technical editing for the final document; formatting the final document to EPA specifications for print and electronic versions; and other tasks related to the white paper as directed by the WACOR via written technical direction.

Task 4: Conduct an Assessment of the Current State of the Science of Sensor Monitoring Technologies for Water. The contractor shall assist with the development of an assessment of the current state of the science of sensor technology. This assessment shall evaluate existing research literature, sensor initiatives, current sensor-based monitoring networks, academic initiatives and other sources to chronicle and effectively portray and display the state of sensors development for a range of uses and applications. The contractor shall work closely with the WACOR to pilot different approaches and vet these options with the EPA Advanced water monitoring team.

Task 5: Support to Office of Water for the E Enterprise Leadership Council (EELC) Advanced Monitoring Effort

The Office of Enforcement and Compliance Assurance (OECA) is co-chairing an effort with the Environmental Commissioners of the States (ECOS) on a collaborative effort related to Advanced Monitoring. There are five areas that the EELC is advancing where the contractor's support shall be needed. The five EELC action areas are:

1. Options and Feasibility Analysis for Independent Third Party Verification Program
2. Technology Scan, Screen and User Support, including development of data quality tiers
3. Data interpretation
4. Data standards
5. LEAN the Methods Programs (also see Task below)

The Contractor shall assist OW with participation in this effort by participating in meetings, preparing key background information, compiling issues and brief strategy papers and otherwise assisting the Office of Water to assure that its programmatic and policy interests are represented and considered. The WACOR will provide additional written technical direction as needed.

Task 6: LEANing the Analytical Methods Programs

The Office of Water is responsible for analytical methods programs under the Clean Water Act and Safe Drinking Water Act. LEANing these existing methods programs could have several benefits, including:

- Understanding the relevance of the existing analytical methods approval programs to the world of sensors and related technologies
- Identify ways to streamline or tailor the methods programs to address sensors
- Understanding the resource implications of potential applications of sensors to the methods program
- Compare and contrast the methods programs and associated attributes (positive and negative)

Under this task, the Contractor shall work collaboratively with each of the methods leads to:

- Prepare process flow charts for the existing methods programs
- Identify scoping alternatives and associated timetables for LEANing the two methods programs
- Recommend an approach and timetable for completing the LEAN processes

Task 7: Assess the Relevance and Applicability of QAPPs to Sensors

Collection of environmental monitoring data necessitates that a Quality Assurance Project Plan (QAPP) be in place to assure that the data and information collected follows an established plan that assures that the data is accurate, reproducible and reliable. QAPPs for the collection and analysis of traditional field sampling, chain of custody, analysis in the laboratory, and reporting of results are well known and understood. The essential elements and content of QAPPs for sensor-based monitoring are not well understood. The Contractor shall assist with:

- Understanding the nature of current QAPPs for sensor-based watershed programs and related efforts
- Identifying the critical elements of QAPPs for sensors
- Prepare a compare and contrast chart that shows the similar and different elements of traditional and sensor based monitoring

Task 8: Assist with supporting the Office of Water's participation in Internal and External Forums

A. The Contractor shall participate and support OW's involvement in the key meetings and forums, assisting the Office of Water with framing important and relevant **internal** dialogues related to remote, continuous, and sensor monitoring technologies. Information shall be summarized from these internal meetings for potential inclusion in the final white paper. Support may include note-taking and providing detailed meeting summaries of such meetings/forums. The internal forums may include:

   a. Forum on Environmental Management
   b. E Enterprise
      i. Technology Development
      ii. Data Management/Integration
      iii. Regulatory/Policy Issues
   c. OECA-ORD Advanced Monitoring Initiative
   d. Other Forums as identified by the WACOR

B. The Contractor shall assist in identifying the critical **external** forums that may warrant participation by EPA staff; assisting EPA staff with identifying potential external forums sources for obtaining information on remote, continuous, and sensor monitoring technologies. Support may include travel to attend meetings, note-taking and providing detailed meeting summaries of such meetings/forums.

C. During the course of assisting with participation in Internal and External Forums, specific issues may arise that require investigation and analysis. The contractor shall support the analysis phase for **up to 4** issues as they arise, and shall also support the documentation of the investigation or analysis. As appropriate, the results of the analysis/investigation shall be provided in a form that can be included in the white paper.

VI. SCHEDULE OF DELIVERABLES:

Task/ Subtask	DELIVERABLE	Schedule
0	**Develop a Work Plan**	In accordance to contract requirements
1	**Kickoff Meeting Notes**	Due two business days after Kickoff Meeting
2	**Quality Assurance Documentation Report/ Information Quality Guidelines Checklist**	When work under this WA is finished
3.A	**Memo on current and future potential uses of remote/continuous/sensor monitoring**	Within 14 days of request by the EPA WACOR
3.B	**Memo on the spectrum of technical, regulatory, policy issues of remote/continuous/sensor monitoring**	Within 14 days of request by the EPA WACOR
3.C	**Memo on options and strategies of remote/continuous/sensor monitoring**	Within 14 days of request by the EPA WACOR

3.D	**Prepare Draft White Paper** **Prepare Final White Paper**	Within 14 days of request by the EPA WACOR Within 14 days of request by the EPA WACOR
6	**Prepare draft recommendations of approach and timetable for completing the LEAN processes**	Due as requested by the EPA WA-COR via written technical direction
7	**Prepare a compare and contrast chart showing the similar and different elements of traditional and sensor based monitoring**	Due as requested by the EPA WA-COR via written technical direction
8.A	**Support of Internal meetings**	Due as requested by the EPA WA-COR via written technical direction
8.B	**Identification of External Forums**	Due as requested by the EPA WA-COR via written technical direction
8.C	**Results of Analysis and Investigations**	Due as requested by the EPA WA-COR via written technical direction

VII. Other Administrative

PRINTING
All copying and printing will be accomplished within the limitations of the printing clause of the contract.

CONTRACTOR IDENTIFICATION

The Contractor personnel will clearly identify corporate affiliation at the start of any meeting or training workshop. While attending EPA-sponsored meetings, conferences, symposia, etc., or while on a Government site, the Contractor personnel will wear a badge that identifies the individual as a contractor employee. Contractor personnel are strictly prohibited from acting as a representative of the Agency meetings, conferences, symposia, etc.

MEETINGS, CONFERENCES, TRANINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities including travel and expenses in support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than $20,000, will be obtained by the EPA CL COR as needed and provided to the Contracting Officer. Work under conference-related activities and expenses will not occur until this approval is obtained and provided by the EPA CL COR.

ATTACHMENT A

Office of Water
Information Quality Guidelines: Pre-Dissemination Review Guidance and Checklists

version 2.2 (January 10, 2003)

BACKGROUND

In order to comply with Section 515 of the Treasury and General Government Appropriations Act for FY 2002 (Public Law 106-554), the Office of Management and Budget developed guidelines that "provide policy and procedural guidance for ensuring and maximizing the quality, objectivity, utility, and integrity of information, including statistical information, disseminated by Federal agencies."

In response to OMB's guidelines (FRL-7157-8, March 2002), EPA developed the *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency* (The Guidelines), which contains EPA's policy and procedural guidance for ensuring and maximizing the quality of the information we disseminate. "Quality" refers to objectivity, integrity, and utility.

The Guidelines also:
III. outline administrative mechanisms for EPA pre-dissemination review of information products
1.a. enable affected persons to file complaints regarding disseminated information that they believe to be noncompliant with EPA's Guidelines.

Implementation began ***October 1, 2002.***

For more information, visit http://www.epa.gov/oei/qualityguidelines/

In order to ensure that information meets The Guidelines, the following guidance and checklists should be used prior to dissemination.

OVERVIEW

1.b. What information is covered under The Guidelines?
IV. Is your organization in compliance with EPA's existing Quality System and Office of Water's Quality Management Plan?

⇌ What type of information do I have?

⇌ Do additional guidelines apply for externally gathered data?

⇌ Checklists for Pre-Dissemination Review

⇌ What are Requests for Correction and Requests for Reconsideration, and how does OW respond to them?

WHAT INFORMATION IS COVERED UNDER THE GUIDELINES?

These guidelines apply only to *information* EPA *disseminates* to the public.

What DO The Guidelines cover?

⇌ EPA prepares the information and distributes it to support or represent EPA's viewpoint, or to formulate or support a regulation, guidance, or other Agency decision or position.

⇌ EPA distributes information prepared or submitted by an outside party in a manner that reasonably suggests that EPA endorses or agrees with it.

⇌ EPA reviews and comments on information distributed by an outside party in a manner that indicates EPA is endorsing it, directs the outside party to disseminate it on EPA's behalf, or otherwise adopts or endorses it.

What DON'T The Guidelines cover?

⇌ Distribution of information for government employees

⇌ EPA response to FOIA, FACA, or similar legislation

⇌ Correspondence directed to individuals or persons

⇌ Information presented solely to Congress

⇌ Ephemeral information (press releases, fact sheets, press conferences)

⇌ Background information (published articles distributed by libraries, or other non-EPA endorsed distributions)

⇌ Information distributed by recipients of EPA grants, contracts, or cooperative agreements *unless* EPA adopts or endorses the information

⇌ Information in public filings, including information submitted to EPA, either voluntarily or under mandates/requirements

⇌ Distribution of information in judicial cases or administrative adjudication

IS YOUR ORGANIZATION IN COMPLIANCE WITH EPA'S EXISTING QUALITY SYSTEM AND OFFICE OF WATER'S QUALITY MANAGEMENT PLAN?

Many of EPA's current quality assurance practices fulfill much of EPA's Information Quality Guidelines. Examples of these policies are: Quality System, Peer Review, Action Development Process, Integrated Error Correction Process, Information Resources Management Manual, Risk Characterization Policy and Handbook, Program-Specific Policies, and EPA's Commitment to Continuous Improvement. EPA information disseminated to the pubic must meet EPA's already existing Quality System and other related policies. The Quality System utilizes a graded approach to establish quality criteria that are appropriate for the intended use of the information and the resources available. (The Quality System can be found in EPA Order 5360.1 A2, "Policy and Program Requirements for the Mandatory Agency-wide Quality System" and in the "EPA Quality Manual".)

The Quality System requires Agency organizations to:

⇌ Assign a quality assurance manager

⇌ Develop a Quality Management Plan

⇌ Conduct an annual assessment of the organization's quality system

⇌ Use a systematic planning process to develop acceptance or performance criteria prior to the initiation of all projects that involve environmental information collection and/or use

⇌ Develop Quality Assurance Project Plans for all applicable projects and tasks involving environmental data

⇌ Conduct an assessment of existing data, when used to support Agency decisions or other secondary purposes, to verify accuracy

⇌ Implement all Agency-wide Quality System components in all applicable EPA-funded extramural agreements

⇌ Provide appropriate training for all levels of management and staff

The Office of Water implements EPA's Quality System through its Quality Management Plan, approved by OEI in September 2001. Please refer to this document to ensure that the information you are disseminating complies with Office of Water quality assurance policies.

WHAT TYPE OF INFORMATION DO I HAVE?

Different quality standards apply to influential information, influential scientific risk assessment information, and non-influential information. The definitions of these three types of information are:

Influential: when the Agency can reasonably determine that dissemination of the information will have a clear and substantial impact on important public policies or private sector decisions.

These include OMB economically significant actions, peer reviewed documents, top Agency policy documents, and other actions on a case-by-case basis. Influential information must meet a higher standard of quality: "reproducibility".

→ Reproducibility: providing enough information to allow the public to reproduce our analyses

Influential Scientific Risk Assessment: applies to all dissemination of information regarding human health, environmental, or safety risk assessments, *except* those conducted under the Safe Drinking Water Act, which will adhere to SDWA principles. Information is required to be accurate, reliable, and unbiased; it should also be comprehensive, informative, and understandable. The quality standard is "objectivity," and uses the following principles:

⇌ Information is accurate, reliable, and unbiased. This involves:

→ Best available science, which utilizes sound and objective scientific practices, and peer review when available

$ Data collection by accepted methods

⇌ Presentation of information is consistent with the purpose of the information, is comprehensive, informative, and understandable. This means specifying:

→ each population addressed by the risk

→ expected risk or central estimate

→ upper-bound and lower-bound estimate of risk

→ significant uncertainties identified

→ peer reviewed studies known to the Administrator

Non-Influential: standard of quality is "transparency."

→ Transparency: the public can understand how conclusions were obtained on the information

DO ADDITIONAL GUIDELINES APPLY FOR EXTERNALLY GATHERED DATA?

Most external environmental data is within the scope of the Quality System. This includes literature, industry surveys, compilations from computerized databases and information systems, and results from computerized or mathematical models of environmental processes and conditions.

Regarding voluntarily submitted information, EPA will continue to work with States and other governments, the scientific and technical community, and other interested information providers to develop and publish criteria the EPA would use to assess this type of information.

Depending on your information, you need only fill out ONE of the following three checklists. Please forward the checklists to OW's Information Quality Guidelines Officer for approval and signature. The checklist must then be signed by your Division Director, and a copy sent to your Quality Assurance Officer. Please also note that outside entities may file Requests for Correction (i.e. complaints) to EPA, citing non-compliance with EPA's Information Quality Guidelines.

***Note: OGWDW staff should send their completed checklists directly to their Division Directors. They should work with the OW IQ Guidelines Officer, as their projects and checklists are being developed.*

Office of Water
Information Quality Guidelines Checklist for
Influential Information

Influential Information has or will have a clear and substantial impact on important public policies or private sector decisions. (Includes OMB economically significant actions, peer reviewed documents, top Agency policy documents, and other actions on a case-by-case basis.)

☐ The information to be disseminated is covered under The Guidelines.

☐ The information is in compliance with EPA's Quality System and other related policies.

☐ The information is in compliance with Office of Water's Quality Management Plan.

☐ The information is consistent with the OMB definition of "quality," meaning the information has a high level of objectivity, utility, and integrity.
☐ Objectivity: information is presented in an accurate, clear, complete, and unbiased manner, and as a matter of substance, is accurate, reliable, and unbiased.
☐ Integrity: the information cannot be compromised through corruption or falsification because it is secure from unauthorized access or revision.
☐ Utility: the information is useful to the intended users.

☐ The information meets "reproducibility" standard.
The information and its accompanying documentation has a higher degree of transparency regarding the following:
☐ The source of the data used
☐ The various assumptions employed
☐ The analytic methods applied
☐ The statistical procedures employed

_____ _____
Division Director's Signature & Date IQG Officer for OW Signature & Date
(Officer signature Not needed for OGWDW staff)

**If your information does not comply with any of these items, please attach brief explanation of any omissions. Please forward a copy of this document to your office's Quality Assurance Officer.

Office of Water
Information Quality Guidelines Checklist for
Influential Risk Assessment Information

Influential Scientific Risk Assessment Information has or will have a clear and substantial impact on important public policies or private sector decisions. (Includes OMB economically significant actions, peer reviewed documents, top Agency policy documents, and other actions on a case-by-case basis.)

☐ The information to be disseminated is covered under The Guidelines.

☐ The information is in compliance with EPA's Quality System and other related policies.

☐ The information is in compliance with Office of Water's Quality Management Plan.

☐ The information is consistent with the OMB definition of "quality," meaning the information has a high level of objectivity, utility, and integrity.

☐ Objectivity: information is presented in an accurate, clear, complete, and unbiased manner, and as a matter of substance, is accurate, reliable, and unbiased.

☐ Integrity: the information cannot be compromised through corruption or falsification because it is secure from unauthorized access or revision.

☐ Utility: the information is useful to the intended users.

☐ The information meets "objectivity" standard.

☐ The information is accurate, reliable, and unbiased:

-best available science and supporting studies conducted using sound and objective scientific practices, including peer reviewed studies

-data were collected by accepted methods or best available methods (if the method's reliability nature of the decision justifies the use of the data)

☐ Presentation of information on human health, safety, or environmental risks, consistent with the purpose of the information, is comprehensive, informative, and understandable. Each of the following must be specified:

-each population addressed by the risk or each risk assessment endpoint addressed by any estimate of applicable ecological risk

-expected risk or central estimate for the specific populations affected or the ecological assessment endpoints

-upper-bound and lower-bound estimate of risk

-significant uncertainties identified, and studies that would assist in resolving uncertainties

-peer reviewed studies known to the Administrator that support, are directly relevant to, or fail to support any estimate of risk and the methodology used to reconcile inconsistencies in the scientific data

_____ _____

Division Director's Signature & Date IQG Officer for OW Signature & Date (Officer signature Not needed for OGWDW staff)

**If your information does not comply with any of these items, please attach brief explanation of any omissions. Please forward a copy of this document to your office's Quality Assurance Officer.

Office of Water
Information Quality Guidelines Checklist for
Non-Influential Information

☐ The information to be disseminated is covered under The Guidelines.

☐ The information is in compliance with EPA's Quality System and other related policies.

☐ The information is in compliance with Office of Water's Quality Management Plan.

☐ The information is consistent with the OMB definition of "quality," meaning the information has a high level of objectivity, utility, and integrity.

☐ Objectivity: information is presented in an accurate, clear, complete, and unbiased manner, and as a matter of substance, is accurate, reliable, and unbiased.

☐ Integrity: the information cannot be compromised through corruption or falsification because it is secure from unauthorized access or revision.

☐ Utility: the information is useful to the intended users.

☐ Meets "transparency" quality standard: the public can understand the source of the information and how conclusions were reached on the information.

_____ _____

Division Director's Signature & Date IQG Officer for OW Signature & Date
(Officer signature Not needed for OGWDW staff)

**If your information does not comply with any of these items, please attach brief explanation of any omissions. Please forward a copy of this document to your office's Quality Assurance Officer.

Helpful information for Completing OW IQG Checklists

(1) The information is in compliance with EPA's Quality System and other related policies.

Of specific interest:

→ **EPA INFORMATION QUALITY GUIDELINES**

→ **EPA PEER REVIEW POLICY:**
Is this product a major product under the Agency's peer Review Policy?
Described in the *Science Policy Council Peer Review Handbook,* the EPA Peer Review Policy regards major scientific and technical work products as those that have a major impact, involve precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review.

If so, has it undergone appropriate peer review? Or, is your AA-ship or Region able to articulate why peer review was not conducted?

→ **EPA QUALITY SYSTEM:**
Does this product present or use environmental data?

→ If so, did this product complete a **Quality Assurance Project Plan (QAPP)** or equivalent document(s) for all applicable projects and tasks involving environmental data?

→ Did this product conduct **an assessment of existing data,** when used to support Agency decisions or other secondary purposes, to verify that they are of sufficient quantity and adequate quality for their intended use?

→ **EPA RISK CHARACTERIZATION POLICY AND HANDBOOK, AND OTHER RISK POLICIES**

→ The EPA Risk Characterization Policy and Handbook provide guidance for risk characterization that is designed to ensure that critical information from each stage of a risk assessment is used in forming conclusions about risk. The Policy calls for a transparent process and products that are clear, consistent and reasonable. The Handbook is designed to provide risk assessors, risk managers, and other decision-makers an understanding of the goals and principles of risk characterization.

(2) Ensuring transparency:

Currently, the EPA IQGs do not describe in great detail how EPA intends to ensure transparency and what exactly transparency consists of but rather state in a general sense EPA's renewed commitment to information transparency for all information products.

> The Office of Environmental Information recommends inclusion of the following 5 basic elements in an information product that is being released to the public. This information should be easy to find within a product.

1. Purpose — information products should clearly state the purpose of the product itself. The product should also include a discussion of the intended audience, why the product was created, and an overview of the analysis behind and/or information within the product.

2. Explanation of Potential Uses — information products should provide explanations of how the various types of information and/or analyses presented in the product can used. Each information product should clearly convey why the product was developed (i.e., what its intended use is). This will help users ascertain product quality as it suits their own needs.

3. Product content: Inputs, Methodology, and Outputs — the product should clearly explain to product users the sources of data used to develop the information product (inputs), the scope of the analysis and how the information was put together (methodology), and the information that is made uniquely available through the information product (outputs).

4. Product Limitations and Caveats — a product should clearly state the strengths and weaknesses of the information product, and the accuracy of the source data used for its intended use. In addition, the metadata should also discuss the implications of data quality on the product itself. Furthermore, this where a product developer should be informing the user of the origins of the data and the quality considerations associated with secondary use. The product should describe the difference between why the data was initially collected and how such quality considerations are accommodated in the most recent use by EPA in this new product.

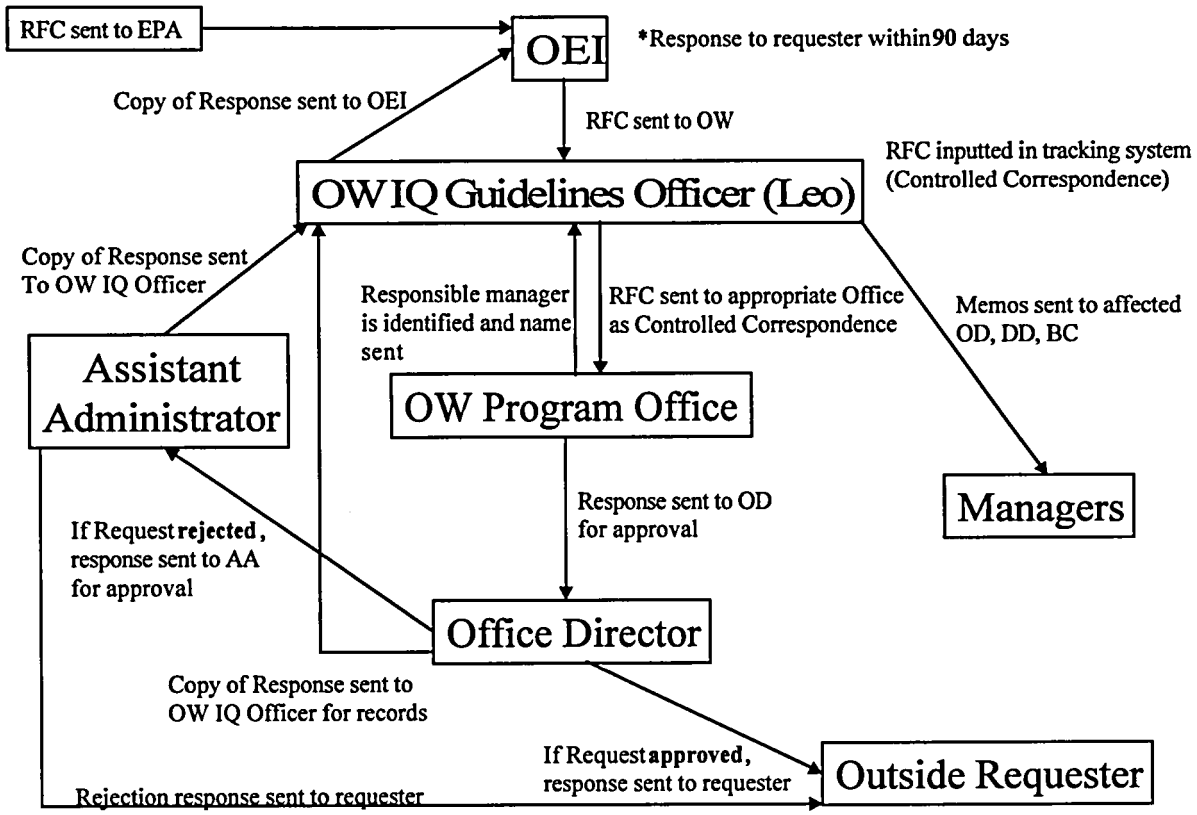
5. Contact information — the information product should explain users with basic contact information. Products should let users know who is responsible for the product and whom they can contact to obtain more information and/or obtain answers to questions they may have on the product or any analyses presented in the product. This is also important in case the user wishes to submit a Request for Correction or later a Request for Reconsideration. The user should be able to tell which Program and/or Region the product came from.

WHAT ARE REQUESTS FOR CORRECTION AND REQUESTS FOR RECONSIDERATION, AND HOW DOES OW RESPOND TO THEM?

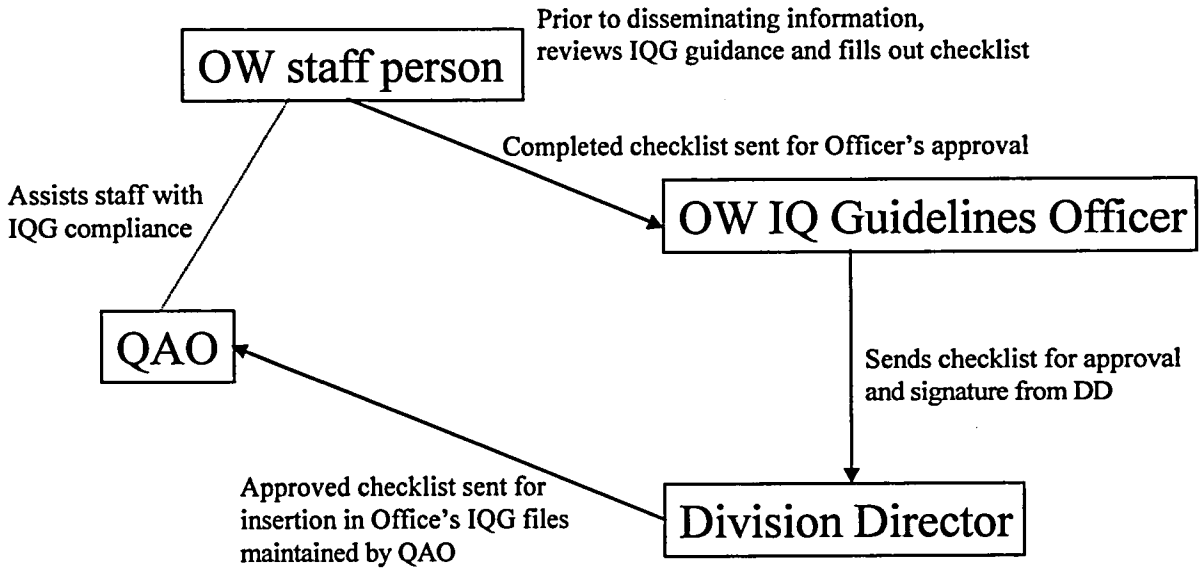
The public and outside entities may send complaints to the Office of Environmental Information, stating that EPA information does not comply with OMB's or EPA's Information Quality Guidelines. These complaints are called Requests for Corrections (RFC). These requests should include contact information of the requester, a description of the EPA information in question, an explanation of how the information does not comply with the Guidelines, a recommendation for corrective action, and an explanation of how the alleged error affects or how a correction would benefit the requester.

When an RFC is received by OEI, they will send the RFC to OW, if the information in question is under our jurisdiction. OEI will send the RFC to OW's IQ Guidelines Officer who will then prepare a controlled correspondence to the Office, who has disseminated the information. In addition, a memo will be sent to managers informing them of the Request. The OW Program Office will be responsible for crafting a response. If the response is an approval, the Office Director may sign the response and send it to the requester of the correction. In addition, a copy should be sent to OW's IQ Guidelines Officer. If the response is a disapproval, the response should be sent to the Assistant Administrator for concurrence on the decision. After AA concurrence, the response will be sent to the outside requester, with a copy to OW's IQ Guidelines Officer. OW has 90 days to respond to requester. If additional time is needed for making a decision on an RFC, OW must send requester a letter informing them that OW is currently processing their request. Please see OW RFC Process Diagram.

OW Request for Correction (RFC) Process



OW Pre-Dissemination Review Process



Note: **OGWDW staff should send checklists to Division Director directly. OGWDW staff may contact IQ Guidelines Officer, as information products and checklists are being developed.*

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-22

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	WPD NPDES WQ Technical Support

Contractor	Specify Section and paragraph of Contract SOW
TETRA TECH, INC.	1.1,1,3,2.0,3.2,3.3,3.4,3.5,3.6,3.10,3.12,3.1, 5.7

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 07/01/2017 To 06/30/2018

Comments:
Work shall not begin until July 1, 2017.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 08/05/2014 To 06/30/2018		
This Action:		
Total:		

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Laura Phillips (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-564-0741
	FAX Number:	
Project Officer Name: Thomas Gardner (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-0386
	FAX Number:	
Other Agency Official Name: Evelyn Washington (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-0591
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2002
	FAX Number:	

PERFORMANCE WORK STATEMENT
CONTRACT EP-C-14-016
WORK ASSIGNMENT 3-22

TITLE: Water Permits Division (WPD) National Pollutant Discharge Elimination System (NPDES) Water Quality (WQ) Technical Support.

1. WORK ASSIGNMENT CONTRACTING OFFICER'S REPRESENTATIVE (WACOR):

Laura J. Phillips
U.S. Environmental Protection Agency
EPA Headquarters
Office of Wastewater Management
Water Permits Division
1200 Pennsylvania Avenue, NW Mail Code (4203M)
(U.S. Postal only) 1201 Constitution Ave. N.W.
Washington, D.C. 20460

E-mail: phillips.laura@epa.gov
Phone: 202-564-0741
Fax: 202-564-9544

ALTERNATE WORK ASSIGNMENT CONTRACTING OFFICER'S REPRESENTATIVE (AWACOR):

Jackie Clark
U.S. Environmental Protection Agency
EPA Headquarters
Office of Wastewater Management
Water Permits Division
1200 Pennsylvania Avenue, NW Mail Code (4203M)
(U.S. Postal only) 1201 Constitution Ave. N.W.
Washington, D.C. 20460

E-mail: clark.jackie@epa.gov
Phone: 202-564-6582
Fax: 202-564-9544

2. PERIOD OF PERFORMANCE: July 1, 2017 through June 30, 2018

3. BACKGROUND INFORMATION: The tasks under this work assignment are continued work from a previous FY17 work assignment (WA) 2-22 under this contract EP-C-14-016. The Water Permits Division (WPD), within the Office of Wastewater Management (OWM),

is responsible for the development and implementation of the National Pollutant Discharge Elimination System (NPDES) permits program. This program regulates point source discharges of pollutants to surface waters of the United States. The Clean Water Act (CWA) and other relevant Federal statutes provide the statutory authority and basis for the NPDES permits program. The appropriate implementation of new or revised EPA criteria and State water quality standards (WQS) under the NPDES permits program is critically important for compliance with EPA's NPDES regulations and the goals of the CWA. Therefore, development of NPDES permits program water quality (WQ) guidance, providing technical support and providing NPDES training to EPA Regions/States (i.e., for WET) are an important part of the NPDES program mission.

4. PERFORMANCE WORK STATEMENT (PWS):

TASK 0 (Contract PWS General): Work Plan, Monthly Progress Reports and Quality Assurance Project Plan Development or Revision (as necessary). EPA estimates 10 Level of Effort (LOE) hours will be required to support the administration of the work assignment and the QAPP. The contractor shall develop a work plan in accordance with the contract requirements. The contractor's work plan shall include a schedule, staffing plan, level of effort (LOE), and a cost estimate for each task, the contractor's key assumptions on which staffing plan and budget are based, and qualifications of proposed staff. This task also includes a requirement for the contractor to provide monthly progress for each task. Monthly progress reports submitted with monthly invoice must include a break out of the LOE hours and cost for each task in this work assignment. In particular, the contractor is to track and provide to the EPA WACOR the LOE hours expended each month under this work assignment for the development, revision, and any activities related to the Quality Assurance Project Plan (QAPP) for this work assignment. The QAPP for WA 3-22 can be an update of the previous QAPP from WA 2-22.

Task 1 (Contract PWS 1.1, 1.3, 2.0, 3.2, 3.3, 3.4, 3.5, 3.6, 3.10, 3.12, 3.14, 5.1, 5.7): EPA NPDES WET Program and Regional WET and/or WQ Technical Support. Task 1 includes the overall national technical support task for EPA's NPDES WET and/or WQ program. EPA estimates 10 LOE hours will be required for this task.

National NPDES WET Task:

The contractor shall provide NPDES permit program and WQ expert technical support (i.e., WET) to EPA on issues concerning State NPDES WET implementation such as reasonable potential (RP) determinations, independent applicability, integrated criteria, EPA WET test methods questions, and NPDES WET permits program implementation technical questions (e.g., total dissolved solids, testing high saline effluent samples, pathogen interference). The contractor shall provide, if requested by the EPA WACOR through a written technical directive, technical support on questions concerning RP determinations for toxics.

EPA estimates there will be one page of questions or comments on NPDES WET issues from EPA Regions such as R4 or R6 which will be provided to the contractor by the EPA WACOR. The NPDES WET questions in addition to the issues mentioned above may also include but are

not limited to: WET test species selection and sensitivity; monitoring; Toxicity Identification Evaluations/Toxicity Reduction Evaluations (TIEs/TREs); WET data statistical analysis approaches or interpretation (i.e., EPA's 1991 Technical Support Document [TSD] or 2010 Test of Significant Toxicity [TST] document); and other NPDES WET technical issues.

In addition, EPA through a technical directive to the contractor may identify NPDES WET technical questions on EPA Regional and/or state RP NPDES WET implementation procedures (IP). EPA estimates up to two pages total from various states' draft permit quality review (PQR) reports that the EPA WACOR will identify thru a written technical directive to the contractor for a technical review of WET or toxics issues.

For planning purposes, for all of technical support requested by the EPA WACOR under this task, the contractor shall assume there may be up to two one-hour conference calls using EPA's conference call lines.

Task 1 NPDES WET Program Deliverables: The contractor shall provide technical support to EPA on NPDES WET and/or toxics program implementation based on questions or issues provided by the EPA WACOR to the contractor. For planning purposes the contractor shall assume that the deliverables are due to the EPA WACOR within one week after the EPA WACOR's written technical direction to initiate work.

TASK 2: (Contract PWS 1.1, 1.3, 2.0, 3.2, 3.3, 3.4, 3.5, 3.6, 3.14): Expert Whole Effluent Toxicity (WET) Test Method and Statistical Technical. EPA estimates a total of 10 LOE hours will be required.

EPA HQ is coordinating primarily with two EPA Headquarter offices to review and respond to ongoing stakeholder challenges concerning the implementation of WET under the NPDES permits program with respect to the statistical analysis of WET test data. The two HQ offices are the Office of General Counsel (OGC) and the Engineering and Analytical Support (EAS) Branch of the Engineering and Analysis Division (EAD) in the Office of Science and Technology (OST) located in Washington, D.C. The work under this Task is a continuation of work done under the previous WA 2-22 and contract EP-C-14-016 for an existing EPA NPDES WET Region 9 litigation unless EPA gets a favorable court decision for EPA which would completely end the existing litigation (which if it happens the EPA WACOR will notify the contractor in a written technical directive as quickly as possible). This task was designed to provide specific expert technical support with respect to EPA's WET test methods, approaches to analyzing WET test data (statistically) and the review of laboratory WET test data analytical reports. There may be occasional local meetings at the EPA's Headquarters offices. All necessary documents, data, and reference materials will be provided to the contractor through the EPA WACOR by E-mail in electronic files (i.e., WORD, Excel, Complex Effluent Toxicity Information System [CETIS] WET test data reports) and/or as hard copies. The EPA WACOR will coordinate the requests for expert technical support using written technical directives including the requested deliverable delivery date(s) (usually within up to two weeks from receipt of materials unless a more urgent deadline is required) concerning the review of materials provided to the contractor for review and/or in arranging conference calls and meetings.

Through written technical direction the EPA WACOR may direct the contractor to provide expert WET support to provide draft recommendations to EPA to answer WET technical questions about EPA's freshwater and/or saltwater EPA WET test methods and including especially explaining various statistical approaches for analyzing WET test data.

The EPA WACOR through a written technical directive may direct the contractor to provide expert WET technical support in two main areas. The first area of support may involve the contractor answering questions on the differences between point estimate and hypothesis test statistical approaches when evaluating WET test data as described in EPA's WET test methods or based on EPA Regional or NPDES state permitting approaches. Under this same context of NPDES WET permit program implementation the contractor may need to technically differentiate between the various WET test endpoints for either or both acute and chronic measurements of toxicity (e.g., LC50, IC25, NOEC, etc.) and information in Table 1A of EPA's WET test methods. The second area of technical support involves the contractor reviewing up to 2 pages of (either or combination of): (a) EPA draft document language prepared by the OGC for scientific technical correctness only (i.e., WET test methods consistency, correct description of statistical approaches and applications); and/or (b) incoming language or parts of documents that the OGC needs to technically evaluate with respect to EPA's WET test methods and recommended statistical approaches for evaluating WET test data. For example, the contractor shall provide expert WET technical support to OGC on challenges to the implementation of the NPDES WET permits program including complex technical arguments regarding the analysis of WET test data (statistical approaches) used for making RP determinations and requiring WET water quality-based effluent limits (WQBELs). The contractor shall provide expert technical support in reviewing incoming language (i.e., documents, excerpts from documents) sent to EPA challenging the NPDES WET permits program and/or drafting for EPA's review draft responses with respect to EPA's WET test methods or recommended WET test data analytical statistical approaches. After OGC has reviewed the contractor's draft deliverables and provided review comments back to the contractor through the EPA WACOR the contractor shall revise the draft deliverables within a time frame specified by the EPA WACOR.

The EPA WACOR will work with the OGC to establish deliverable delivery date(s) (usually within up to two weeks from receipt of materials unless a more urgent deadline is required) concerning the review of materials provided to the contractor for review and/or in arranging conference calls and meetings.

Task 2 WET Litigation Deliverable Schedule: The EPA WACOR will work with the EPA's offices to establish deliverable delivery date(s) (usually within up to two weeks from receipt of the technical directive unless a more urgent deadline is required) concerning the review of materials provided to the contractor for review and/or in arranging conference calls and meetings. The EPA WACOR will initiate work requests and schedule deliverables through written technical directives.

NEW TASK 3: (Contract PWS 1.1, 1.3, 2.0, 3.2, 3.3, 3.4, 3.5, 3.6, 3.14): EPA revised draft NPDES selenium water quality criteria (WQC) implementation frequently asked questions (FAQs) document. EPA estimates 10 LOE hours for this task.

This task is a continuation of work under a previous WPD Tetra Tech, Inc. contract. EPA is requesting that the contractor continue to provide technical support on responding to public comments received by EPA on its fall 2016 draft NPDES selenium WQC implementation FAQs document provided to the contractor under the previous WA 2-22 under the same contract.

The EPA WACOR may request through a written technical directive that the contractor participate in EPA internal conference calls (using EPA conference call lines) to provide selenium WQC expert technical support for NPDES permits program implementation of the final revised selenium WQC. These EPA conference calls may include participants from EPA Regions and/or HQ program offices (i.e., OWM, OST, OWOW, OGC, OECA). The contractor may be requested to participate in a NPDES workgroup selenium conference call of up to one hour, as requested by the WACOR. For planning purposes the contractor shall assume that there may be one more revision of the draft NPDES FAQs based on comments from EPA HQ managers and/or staff and EPA Regions.

The EPA WACOR will establish a deliverable schedule with the contractor once comments are received back from EPA's Regions and HQ management. The contractor shall revise the draft NPDES FAQs within up to three weeks of receiving EPA's review comments unless otherwise directed by the EPA WACOR through a written technical directive.

Task 3 Selenium Deliverables: The contractor shall provide technical support on finalizing the revised draft 2017 EPA's draft NPDES program selenium WQC implementation FAQs based on EPA's interpretation and response to the 2017 public comments received on the previous 2016 draft NPDES selenium FAQs. EPA will provide the latest revised draft of the NPDES FAQs to the contractor from the previous work assignment 2-22 under this same contract. For planning purposes the contractor shall assume that the deliverables are due to the EPA WACOR within three weeks after receiving EPA's review comments on revised drafts of the NPDES selenium FAQs unless otherwise directed by the EPA WACOR through a written technical directive.

NEW TASK 4: (Contract PWS 1.1, 1.3, 2.0, 3.2, 3.3, 3.4, 3.5, 3.6, 3.14): EPA draft NPDES Whole Effluent Toxicity (WET) implementation frequently asked questions (FAQ) document. EPA estimates 94 LOE hours for this task.

This task is a continuation of work under the previous WA 2-22 under the same contract. EPA is requesting that the contractor provide expert technical support to develop a draft NPDES WET compendium of NPDES WET implementation frequently asked questions (FAQs) based from primarily existing draft materials EPA will provide to the contractor and also additional expert NPDES WET technical support from the contractor. EPA will provide several initial NPDES WET implementation issues EPA has based on discussions with EPA Regions and/or their states and will provide additional topics as they are identified. This task may involve the contractor participating in conference calls (using EPA conference call lines) to discuss possible revisions

to existing FAQs and to incorporate new FAQs based on discussions, additional materials (e.g., R4 or R9 FAQs, EPA references such as 2002 EPA WET test methods manuals, EPA NPDES WET training sites, and possibly other references) provided by the EPA WACOR and feedback from EPA Regions 1-10.

Once a draft NPDES WET implementation FAQs document has been developed it will be circulated to the Water Permits Division/State and Regional Branch managers, the EPA Regions 1-10 and possibly EPA's Office of Research and Development (ORD) for review and comment. The contractor will revise the draft FAQs document based on the comments received which will be transmitted to the contractor from the EPA WACOR in a technical directive. The EPA WACOR will establish a deliverable schedule with the contractor once questions or materials are received from other EPA offices. The contractor shall revise the draft materials within up to four weeks of receiving EPA's review comments.

Task 4 Draft NPDES WET Implementation FAQs Deliverables: The contractor shall provide a consolidated NPDES WET implementation FAQs document within four weeks of EPA's work plan approval. The contractor shall provide a revised draft FAQ document based on EPA review comments within two weeks of receipt of transmitted comments. The contractor shall provide a final NPDES WET implementation FAQs document by or before January 15, 2018 provided EPA's reviews are received and resolved in time otherwise the contractor shall provide a final draft FAQ post EPA review.

5. **QUALITY ASSURANCE (QA) STATEMENT (Contract PWS 4.0, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6):**

   A Quality Assurance Project Plan (QAPP) may be required for Tasks 1-4 but not for Task 0. Since the work requiring a QAPP is continued work from the previous work assignment 3-22 under the same contract, EP-C-14-016; the prior QAPP may be updated and revised pursuant to this work assignment 3-22. This approach will not only ensure consistency between work assignments but also minimize unnecessary expenditures by reusing those parts of the previous QAPP which are still applicable. All data-related activities shall be conducted in accordance with the Office of Water Quality Management Plan (QMP). The contractor shall submit the revised QAPP within 15 days of the submittal of the work plan.

6. **SPECIAL REPORTING REQUIREMENTS:** Reports shall be submitted in accordance with the contract. In addition, the contractor shall immediately notify the EPA WACOR when 75% of the contract funding or labor hours have been utilized and shall not continue performing work beyond the established work assignment funding ceiling. The contractor shall track and provide to the WACOR in the monthly reports an accounting of all LOE hours and ODCs on QA activities for this work assignment. All text deliverables shall be compatible with the Microsoft Word currently used by the Water Permits Division and provided in electronic format (i.e., CD) to the WACOR. Deliverables which shall be released to the public shall be 508 compliant. The contractor shall provide monthly status reports to the WACOR via phone or E-mail and attend periodic status meetings via conference lines set up by EPA WACOR. The contractor shall not release information or comments on works

performed under this work assignment without the WACOR's prior written authorization. Wherever practicable, all written materials submitted to EPA shall be doubled-sided and on recycled paper. All computer disks and DVDs submitted to the EPA WACOR shall be scanned for, and identified as free from viruses. The contractor shall submit drafts and final products in hard copy as well as on the appropriate size disk in a format compatible with Water Permits Division hardware.

7. RESOURCE ESTIMATES (LOE):

EPA estimates that 134 LOE hours shall be required to complete the work under this work assignment.

8. GOVERNMENT RESPONSIBILITIES:

The WACOR will continue to provide to the contractor necessary information or documents required by the contractor to perform tasks under the current work assignment, especially for the information or documents specifically referenced under Tasks 1-4 as being provided to the contractor as existing EPA materials.

10. SURVEILLANCE PLAN: *(discussed in the contract).*

9. CONFERENCE/MEETING GUIDELINES AND LIMITATIONS.

The contractor shall immediately alert the EPA WACOR to any anticipated event under the work assignment which may result in incurring an estimated $20,000 or more cost, funded by EPA, specific to that event, meeting, training, etc. Those costs would include travel of both prime and consultant personnel, planning and facilitation costs, AV and rental of venue costs, etc. The EPA WACOR will then prepare approval internal paperwork for the event and will advise the contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-22

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base X Option Period Number	WPD NPDES WQ Technical Support

Contractor	Specify Section and paragraph of Contract SOW
TETRA TECH, INC.	1.1,1.3,2.0,3.2,3.3,3.4,3.5,3.6,3.14

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 07/01/2017 To 06/30/2018

Comments:
The purpose of this Amendment 1, is to increase the LOE by 87 hours per the attached PWS. All other terms and conditions shall remain unchanged.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 08/05/2014 To 06/30/2018		134
This Action:		87
Total:		221

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee	LOE:
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name: Laura Phillips (Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-0741 FAX Number:
Project Officer Name: Tanyan Bailey (Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-3133 FAX Number:
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2002 FAX Number:

PERFORMANCE WORK STATEMENT
CONTRACT EP-C-14-016
WORK ASSIGNMENT 3-22, Amendment One

TITLE: Water Permits Division (WPD) National Pollutant Discharge Elimination System (NPDES) Water Quality (WQ) Technical Support.

1. WORK ASSIGNMENT CONTRACTING OFFICER'S REPRESENTATIVE (WACOR):

Laura J. Phillips
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EPA Headquarters
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Washington, D.C. 20460

E-mail: phillips.laura@epa.gov
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Fax: 202-564-9544

ALTERNATE WORK ASSIGNMENT CONTRACTING OFFICER'S REPRESENTATIVE (AWACOR):

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EPA Headquarters
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Washington, D.C. 20460

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Fax: 202-564-9544

2. PERIOD OF PERFORMANCE: July 1, 2017 through June 30, 2018

3. PURPOSE: The purpose of amendment one is to add LOE hours to Tasks 0, 1 and 4 and to add a new task 5. (See below).

4. **BACKGROUND INFORMATION: No Change.**

5. **PERFORMANCE WORK STATEMENT (PWS):**

TASK 0 (Contract PWS General): Work Plan, Monthly Progress Reports and Quality Assurance Project Plan Development or Revision (as necessary). EPA estimates an additional 10 Level of Effort (LOE) hours will be required to support the administration of the work assignment and the QAPP for this amendment one. The new LOE total will be 20 LOE hours (10 + 10 hours). Otherwise PWS for this task has not changed.

Task 1 (Contract PWS 1.1, 1.3, 2.0, 3.2, 3.3, 3.4, 3.5, 3.6, 3.10, 3.12, 3.14, 5.1, 5.7): EPA NPDES WET Program and Regional WET and/or WQ Technical Support. Task 1 includes the overall national technical support task for EPA's NPDES WET and/or WQ program. EPA estimates an additional 10 LOE hours will be required for this task for a new total of 20 LOE hours (10 + 10 LOE hours).

National NPDES WET Task:

The contractor shall continue to provide NPDES permit program and WQ expert technical support (i.e., WET) to EPA on issues concerning State NPDES WET implementation such as reasonable potential (RP) determinations, independent applicability, integrated criteria, EPA WET test methods questions, and NPDES WET permits program implementation technical questions (e.g., total dissolved solids, testing high saline effluent samples, pathogen interference). Other topic areas for possible questions may include but are not limited to: WET test species selection and sensitivity; monitoring; Toxicity Identification Evaluations/Toxicity Reduction Evaluations (TIEs/TREs); WET data statistical analysis approaches or interpretation (i.e., EPA's 1991 Technical Support Document [TSD] or 2010 Test of Significant Toxicity [TST] document); and other NPDES WET technical issues. The contractor shall provide, if requested by the EPA WACOR through a written technical directive, technical support on questions concerning RP determinations for toxics.

EPA estimates there will be an additional page of questions or comments on NPDES WET issues from EPA Regions such as R4 or R6 which will be provided to the contractor by the EPA WACOR. For planning purposes the contractor shall assume there may be up to two one-hour conference calls using EPA's conference call lines.

Task 1 NPDES WET Program Deliverables: The contractor shall provide technical support to EPA on NPDES WET and/or toxics program implementation based on questions or issues provided by the EPA WACOR to the contractor. For planning purposes the contractor shall assume that the deliverables are due to the EPA WACOR within one week after the EPA WACOR's written technical direction to initiate work.

TASK 2: (Contract PWS 1.1, 1.3, 2.0, 3.2, 3.3, 3.4, 3.5, 3.6, 3.14): Expert Whole Effluent Toxicity (WET) Test Method and Statistical Technical. No Change.

TASK 3: (Contract PWS 1.1, 1.3, 2.0, 3.2, 3.3, 3.4, 3.5, 3.6, 3.14): EPA revised draft NPDES selenium water quality criteria (WQC) implementation frequently asked questions (FAQs) document. No Change.

TASK 4: (Contract PWS 1.1, 1.3, 2.0, 3.2, 3.3, 3.4, 3.5, 3.6, 3.14): EPA draft NPDES Whole Effluent Toxicity (WET) implementation frequently asked questions (FAQ) document. EPA estimates an additional 22 LOE hours will be required for this task for a new total of 116 LOE hours (22 + 94 LOE hours). Additional hours are needed to continue the ongoing work from the original work assignment. The PWS for this task has not substantively changed but the deliverable schedule has been adjusted (see below).

Task 4 Draft NPDES WET Implementation FAQs Revised Deliverable Schedule: The contractor shall support the EPA WACOR, as requested, in developing a final NPDES WET implementation FAQs document by or before June 2018 provided EPA's reviews are received and resolved in time otherwise the contractor shall provide a final draft FAQ post EPA review.

NEW TASK 5: (Contract PWS 1.1, 1.3, 2.0, 3.2, 3.3, 3.4, 3.5, 3.6, 3.14): EPA Whole Effluent Toxicity (WET) expert technical support regarding test endpoints and data interpretation. EPA estimates 45 LOE hours will be required for this task.

EPA has WET technical questions concerning WET data interpretation and laboratory data reporting some of which may cross over to NPDES WET permit implementation. EPA may need expert WET NPDES technical support to develop draft materials concerning possible complex WET test endpoints in response to data interpretation questions. The EPA WACOR through a technical directive(s) may request from the contractor expert WET technical support to review complex technical questions, concerns, or points raised concerning WET test endpoints. Some of the WET technical points and questions include:

- How do WET point estimate test endpoints (e.g., IC_{25}) differ from hypothesis test endpoints? How important are confidence intervals? What effect does it have on the value of data if confidence intervals are not factored into data interpretation of valid WET data?
- What are the pros and cons of each type of WET test endpoint in the context of intra-laboratory data report variability?
- What are possible approaches for addressing within and between laboratory test variability? Include discussion of EPA's 2000 NPDES WET Variability Guidance.
- Does it matter if NPDES permit WET limit expressions and laboratory QA reports test endpoints are different? How or does this affect the NPDES permits program with respect to WET limits?

NEW Task 5 NPDES WET Program Deliverable(s):
The contractor shall provide technical support to EPA on NPDES WET and/or toxics program implementation based on questions or issues provided by the EPA WACOR to the contractor.

The contractor shall provide the following expert NPDES WET technical support to EPA: provide explanations on WET test endpoint statistical questions; review proposed technical points; and review WET test data. The EPA WACOR will provide up to two pages of comments, questions, and other material for review. As requested by the EPA WACOR through a technical directive, there may be up to two one hour calls with the EPA WACOR and other EPA OW program staff to discuss comments, questions, and WET test endpoint(s) or other WET technical explanations. For planning purposes, there may be up to two meetings at EPA's HQ with the WACOR and other EPA offices such as OC and EAD to address outstanding technical questions and concerns concerning statistics and WET data interpretation. The contractor shall send EPA draft deliverables for EPA's review within two weeks of the EPA WACOR's technical direction unless otherwise noted by the EPA WACOR.

6. **QUALITY ASSURANCE (QA) STATEMENT (Contract PWS 4.0, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6): No change.**

7. **SPECIAL REPORTING REQUIREMENTS: No Change.**

8. **RESOURCE ESTIMATES (LOE):**

   EPA estimates that an additional 87 LOE hours shall be required to complete the work under this Amendment 1 for WA 3-22 for a new total of 221 LOE hours (87 + 134 hours).

9. **GOVERNMENT RESPONSIBILITIES:**

   The WACOR will continue to provide to the contractor necessary information or documents required by the contractor to perform tasks under the current work assignment, especially for the information or documents specifically referenced under Tasks 1-4 ***and new Task 5*** as being provided to the contractor as existing EPA materials.

10. **SURVEILLANCE PLAN:** *(discussed in the contract).* **No Change.**

11. **CONFERENCE/MEETING GUIDELINES AND LIMITATIONS. No Change.**

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-22

☐ Other ☒ Amendment Number: 000002

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	WPD NPDES WQ Technical Support

Contractor	Specify Section and paragraph of Contract SOW
TETRA TECH, INC.	1.1,1.3,2.0,3.2,3.3,3.4,3.5,3.6,3.10,3.14,5.1,5.7

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 07/01/2017 To 06/30/2018

Comments:
The purposes of Amendment 2 are to add Tasks 6 and 7 per the attached PWS, and to increase the LOE by 185 Hours.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 08/05/2014 To 06/30/2018		221
This Action:		185
Total:		406

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Laura Phillips (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-564-0741
	FAX Number:	
Project Officer Name: Tanyan Bailey (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-564-3133
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2002
	FAX Number:	

PERFORMANCE WORK STATEMENT
CONTRACT EP-C-14-016
WORK ASSIGNMENT 3-22, Amendment Two

TITLE: Water Permits Division (WPD) National Pollutant Discharge Elimination System (NPDES) Water Quality (WQ) Technical Support.

1. WORK ASSIGNMENT CONTRACTING OFFICER'S REPRESENTATIVE (WACOR):

Laura J. Phillips
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EPA Headquarters
Office of Wastewater Management
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ALTERNATE WORK ASSIGNMENT CONTRACTING OFFICER'S REPRESENTATIVE (AWACOR):

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Fax: 202-564-9544

2. PERIOD OF PERFORMANCE: July 1, 2017 through June 30, 2018

3. PURPOSE: The purpose of amendment two is to add Tasks 6 and 7 that are new to work assignment 3-22 but are a continuation of previous work from prior option years under this work assignment.

4. BACKGROUND INFORMATION: No Change.

5. PERFORMANCE WORK STATEMENT (PWS):

TASK 0 (Contract PWS General): Work Plan, Monthly Progress Reports and Quality Assurance Project Plan Development or Revision (as necessary). EPA estimates an additional 30 Level of Effort (LOE) hours will be required to support the administration of the work assignment and to update the prior QAPP for this amendment two. Otherwise PWS for this task has not changed.

***NEW* TASK 6: (Contract PWS 1.1, 1.3, 2.0, 3.2, 3.3, 3.4, 3.5, 3.6, 3.14): Expert Whole Effluent Toxicity (WET) Test Method and Statistical Technical. EPA estimates 70 LOE hours will be required for this task.**

EPA HQ is coordinating primarily with two EPA Headquarter offices to review and respond to ongoing stakeholder challenges concerning the implementation of WET under the NPDES permits program with respect to the statistical analysis of WET test data. The EPA offices that the EPA WACOR will be working with are the Office of General Counsel (OGC) and the Office of Regional Counsel (ORC) in EPA Region 9. The work under this Task is a continuation of work done under previous option years for WA 3-22 and contract EP-C-14-016 for an existing EPA NPDES WET Region 9 litigation unless EPA gets a favorable court decision for EPA which would completely end the existing litigation (which if it happens the EPA WACOR will notify the contractor in a written technical directive as quickly as possible but is not anticipated to be near term). This task was designed to provide specific expert technical support with respect to EPA's WET test methods, approaches to analyzing WET test data (statistically). There may be occasional local meetings at the EPA's Headquarters offices. All necessary documents, data, and reference materials will be provided to the contractor through the EPA WACOR by E-mail in electronic files (i.e., WORD, Excel, Complex Effluent Toxicity Information System [CETIS] WET test data reports) and/or as hard copies. The EPA WACOR will coordinate the requests for expert technical support using written technical directives including the requested deliverable delivery date(s) (usually within up to two weeks from receipt of materials unless a more urgent deadline is required) concerning the review of materials provided to the contractor for review and/or in arranging conference calls and meetings.

Through written technical direction the EPA WACOR may direct the contractor to provide expert WET support to provide draft recommendations to EPA to answer WET technical questions about EPA's freshwater and/or saltwater EPA WET test methods and including especially explaining various statistical approaches for analyzing WET test data.

The EPA WACOR through a written technical directive may direct the contractor to provide expert WET technical support in two main areas. The first area of support may involve the contractor answering questions on the differences between point estimate and hypothesis test statistical approaches when evaluating WET test data as described in EPA's WET test methods or based on EPA Regional or NPDES state permitting approaches. Under this same context of NPDES WET permit program implementation the contractor may need to technically differentiate between the various WET test endpoints for either or both acute and chronic measurements of toxicity (e.g., LC50, IC25, NOEC, etc.) and information in Table 1A of EPA's WET test methods. The second area of technical support involves the contractor reviewing up to

2 pages of (either or combination of): (a) EPA draft document language prepared by the OGC for scientific technical correctness only (i.e., WET test methods consistency, correct description of statistical approaches and applications); and/or (b) incoming language or parts of documents that the OGC needs to technically evaluate with respect to EPA's WET test methods and recommended statistical approaches for evaluating WET test data. For example, the contractor shall provide expert WET technical support to OGC on challenges to the implementation of the NPDES WET permits program including complex technical arguments regarding the analysis of WET test data (statistical approaches) used for making RP determinations and requiring WET water quality-based effluent limits (WQBELs). The contractor shall provide expert technical support in reviewing incoming language (i.e., documents, excerpts from documents) sent to EPA challenging the NPDES WET permits program and/or drafting for EPA's review draft responses with respect to EPA's WET test methods or recommended WET test data analytical statistical approaches. After OGC has reviewed the contractor's draft deliverables and provided review comments back to the contractor through the EPA WACOR the contractor shall revise the draft deliverables within a time frame specified by the EPA WACOR.

The EPA WACOR will work with the OGC to establish deliverable delivery date(s) (usually within up to two weeks from receipt of materials unless a more urgent deadline is required) concerning the review of materials provided to the contractor for review and/or in arranging conference calls and meetings.

Task 6 WET Litigation Deliverable Schedule: The EPA WACOR will work with the EPA's offices to establish deliverable delivery date(s) (usually within up to two weeks from receipt of the technical directive unless a more urgent deadline is required) concerning the review of materials provided to the contractor for review and/or in arranging conference calls and meetings. The EPA WACOR will initiate work requests and schedule deliverables through written technical directives.

***NEW* TASK 7: (Contract PWS 1.1, 1.3, 2.0, 3.2, 3.3, 3.4, 3.5, 3.6, 3.10, 3.12, 3.14, 5.1, 5.7): NPDES WET EPA Region HQ-10 training course for EPA Region 10 staff and their NPDES states. EPA estimates 85 LOE hours will be required for this task.**

The contractor shall provide technical support and expertise in providing an EPA HQ national WET training course anticipated for June 27-29, 2018 at Idaho's Department of Environmental Quality (DEQ) Office in Boise, Idaho in their conference room. The contractor shall provide a technical NPDES WET expert who shall support EPA in delivering the EPA HQ-R10 NPDES WET course. The course shall be provided to EPA R10 NPDES permits employees and their NPDES states representatives (especially the state of Idaho) during a two and half day course (eight hours/full day). The morning of the first half day may also include a NPDES WET technical discussion with EPA R10 and the state of Idaho prior to the course starting that afternoon. The contractor shall use existing EPA Headquarters NPDES WET training course materials previously developed with the EPA WACOR under a previous Tetra Tech, Inc. contract with EPA WPD/OWM. The EPA WACOR working with R10 may direct the contractor to make a few R10 minor course modifications to incorporate some R10 or state relevant information into the existing course materials (i.e., R10 or Idaho TIE/TRE case examples, R10 or Idaho permit and WET data review class exercises). There may be up to three conference calls with EPA R10 and/or the state of Idaho using EPA conference call lines to plan and prepare

for the course. The EPA WACOR and R10 will make all the training course logistical arrangements working with Idaho. EPA will print, assemble and ship the course books. The contractor shall provide to the EPA WACOR the final electronic files set up for EPA to print the course books. The contractor shall provide at the course a modified acute WET test demonstration and species display as part of the course class activities.

Task 7 Deliverables: The contractor shall provide a technical NPDES WET expert who shall support EPA in delivering a NPDES WET national training course to EPA R10 staff and their NPDES states, particularly the state of Idaho. Also, there may be a NPDES WET technical discussion with EPA R10 and/or Idaho DEQ in the morning before the course begins in the afternoon. The contractor may be asked to slightly modify EPA's HQ NPDES WET course to incorporate R10 or Idaho state reference information. The course will take place at Idaho's DEQ office in Boise, Idaho and is currently planned for June 27-29, 2018. However, course planning and materials preparation for the R10 NPDES WET courses will start shortly after the work plan is approved. The contractor shall deliver the final course materials to the EPA WACOR by or before May 2018 on a CD and along with one camera ready hard copy suitable for course book reproduction.

6. **QUALITY ASSURANCE (QA) STATEMENT (Contract PWS 4.0, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6): Starting from the prior QAPP, the contractor shall provide, as appropriate, an updated QAPP.**

7. **SPECIAL REPORTING REQUIREMENTS: No Change.**

8. **RESOURCE ESTIMATES (LOE): EPA estimates that an additional 185 LOE hours shall be required to complete the work under this Amendment 2 for WA 3-22 for a new total of 406 LOE hours (185 + 221 hours).**

9. **GOVERNMENT RESPONSIBILITIES:**

   The WACOR will continue to provide to the contractor necessary information or documents required by the contractor to perform tasks under the current work assignment, especially for the information or documents specifically referenced under Tasks 1-5 ***and for the new Tasks 6 and 7*** as being provided to the contractor as existing EPA materials.

10. **SURVEILLANCE PLAN:** ***(discussed in the contract).*** **No Change.**

11. **CONFERENCE/MEETING GUIDELINES AND LIMITATIONS. No Change.**

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-23

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Tech. Supp. for Biological Ind

Contractor	Specify Section and paragraph of Contract SOW
TETRA TECH, INC.	3.4

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 11/07/2017 To 06/30/2018

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 08/05/2014 To 06/30/2018		
This Action:		
Total:		

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Donna Keclik	(Signature)	(Date)	Branch/Mail Code: / Phone Number: 312-886-6766 / FAX Number:
Project Officer Name: Thomas Gardner	(Signature)	(Date)	Branch/Mail Code: / Phone Number: 202-566-0386 / FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: / Phone Number: / FAX Number:
Contracting Official Name: Courtney Stallworth	(Signature)	(Date)	Branch/Mail Code: / Phone Number: 513-487-2002 / FAX Number:

PERFORMANCE WORK STATEMENT
Tetra Tech, Inc., Contract EP-C-14-016,
Work Assignment 3-23

Period of Performance: Work Assignment Issuance to June 30, 2018
Title: Technical Support for Development and Review of Biological Indicators

Work Assignment COR (WACOR):
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Alternate WACOR:
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A: BACKGROUND

EPA SHPD is working with the regions, states and tribes to develop and assess biological indicators. This Work Assignment shall provide technical support to Region 5 in the (1) review of the proposed thresholds for the Wisconsin Department of Natural Resources biological criteria for rivers and streams and (2) evaluation of the potential development of a Regional lakes macrophyte biological indicator.

Wisconsin Threshold Evaluation

The Wisconsin DNR has developed a macroinvertebrate and fish index of biological integrity that can discriminate degrees of biological condition. The indexes can be used to determine biological impairment in relation to a least disturbed reference condition. However, an index threshold at which impairment can be assessed has not been thoroughly interpreted in terms of biological integrity. Therefore, a study is proposed to further characterize the existing threshold and other possible thresholds in relation to reference conditions, measured stressors, and individual metrics. Because thresholds are established to identify and manage impairments, it is critical that the resource managers clearly communicate the value of the resource, when that resource or use is impaired, and what the impairment means in terms of resource or use degradation. The proposed

analyses will not prescribe a threshold, but will provide information so that resource managers will have a better understanding of the characteristics of the biological condition at alternative thresholds.

The index, metrics, and thresholds provided by WDNR along with reference, classification, and stressor variables will be used in the analyses. Analyses will include reference site evaluation and proportional odds modeling to characterize probabilities that index values accurately indicate reference or stressed conditions. Additional analyses will be conducted if they are found to be informative of the threshold characterization., This could include deviation from index reference values in terms of standard deviation and precision, taxa loss with increasing stress, comparison to stressor gradients, change-point analysis with individual stressors, and comparison of index values and thresholds around the region, among assemblages, and to BCG models where applicable.

Region 5 Macrophyte Indicator Development

The Wisconsin Department of Natural Resources collects data on macrophyte species abundance as part of a larger effort to monitor lake ecological condition. Recently, WDNR developed and tested a macrophyte-based bioassessment approach for Wisconsin lakes (Mikulyuk et al. 2017). The assessment approach links macrophyte abundance to lake ecological condition via data-driven estimates of taxon-specific tolerance to multiple anthropogenic disturbance variables. Assessments occur within region & hydrology lake groups and are based on the frequency of occurrence of species that were statistically classified as sensitive, tolerant, or highly tolerant to anthropogenic disturbance. In conducting the assessment, researchers noted that species growth forms were not equally distributed across tolerance clusters: disturbance-sensitive taxa were often short in stature relative to disturbance-tolerant taxa, while tall submersed and free-floating taxa were highly tolerant. Floating leaf taxa that are tolerant of nutrient enrichment but associated with low shoreline development were found in the moderately tolerant cluster. This finding, along with existing work linking trends in growth-form specific patterns to factors like shoreline disturbance, nutrient enrichment and agricultural activity suggest there may be some potential to use data on species growth form to track anthropogenic stress in lakes (Radomski and Goeman 2001, Egertson et al. 2004, Borman 2007, Borman et al. 2009)

The 2012 National Lakes Assessment included a pilot project to collect data on aquatic macrophyte communities. The method involved collecting information at 1-m depth intervals along 5 transects extending perpendicularly from habitat assessment plots lakeward. At each meter gained in depth, technicians used a rake sampler to observe species growth form presence. Technicians also used transects to estimate the maximum depth of plant colonization. Maximum depth of colonization may be used as a stable and seasonally-integrated indicator of water clarity and/or nutrient status. Species growth form may relate to local or lake-wide patterns in anthropogenic disturbance. We need support to assemble Region 5 data and conduct exploratory analyses that will ultimately determine whether macrophyte growth form and/or maximum depth of colonization can serve as good indicators of anthropogenic disturbance.

This project will first support the assembly of a Region 5-wide dataset on anthropogenic disturbance and reference conditions, which will have multiple research applications. Second, it

will involve exploratory work on developing a macrophyte-based bioindicator for Region 5 lakes. Few bioindicators exist for lakes; development of additional methods to classify and track lake ecological condition is crucial. This work will

- satisfy 305(b) and 303(d) reporting requirements to U.S. EPA
- Identify land use, chemical and physical stressors to lake biological communities
- Establish a set of reference-condition lakes for Region 5 for use in future work
- Explore macrophyte data with reference to reference-condition status and stressor gradients.

C. ON-GOING RESPONSIBILITIES OF THE CONTRACTOR

The EPA Work Assignment COR (WACOR) will coordinate and set-up monthly working calls among EPA staff and the contractor's technical lead to discuss the status and progress of the work under this Work Assignment. The contractor shall participate in these monthly calls. The frequency of the monthly conference calls may be modified based on project status at the request of the contractor and only as approved by EPA. The contractor shall notify the EPA COR of any problems, delays or questions as soon as they arise, including immediate notification of any Work Assignment delays. The contractor shall provide a monthly status report in accordance with contract requirements which will be used for invoice review purposes. All reporting shall be provided in accordance with the requirements noted in Contract EP-C-14-016 and in Sections F&G of this Work Assignment.

Generally, written materials including meeting summaries shall be furnished by the contractor within five (5) business days after request in draft form for the WACOR to review; then a final written deliverable would be expected within five (5) business days after receipt of written technical direction from the WACOR, including the WACOR's comments and edits to the draft deliverable.

D: TASKS

TASK 1: Conference Calls

The Contractor shall participate in calls with the U. S. EPA WACOR to discuss the following: points of contact, roles and responsibilities, Quality Assurance Project Plan (QAPP) protocols, timelines, the schedule of benchmarks, milestones and deliverables, establish dates and times for monthly calls (if necessary) and monthly technical progress reports and general work assignment administrative and technical information.

TASK 2: QAPP

The Contractor shall provide a QAPP that fully addresses the use of secondary data for purposes of the work assignment.

The process for the revised QAPP development and review is:

- Within 15 business days after work assignment award, the contractor shall submit for U. S. EPA review a draft QAPP documenting how quality assurance (QA) and quality control

(QC) shall be applied to the generation, collection, evaluation, analysis and use of environmental data.

- U. S. EPA will review the contractor's draft QAPP, and provide the Contractor with written approval or written comments.

- The Contractor shall submit a revised QAPP within 5 business days of receipt of the written comments on the draft QAPP, unless otherwise instructed by the U. S. EPA WACOR.

QAPP Requirements

The QAPP update shall provide enough detail to clearly describe objectives of the project supported by the work assignment; the type of data to be collected, generated, or used under this work assignment to support the project objectives; the quality objectives needed to ensure that these shall support the project objectives; and the quality assurance (QA) and quality control (QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

TASK 3: Wisconsin Threshold Evaluation

TASK 3.1: Data Management
The contractor shall compile the available data from Wisconsin DNR including background index documentation, site and sample identifiers, biological index and metric values, categorical reference status, and reference site criteria. Additional information that shall be used for additional analyses could include sample taxa lists, taxa traits, stressor measurements, and classification data. The availability of each of these elements may affect the ability of the techniques used for data interpretation to be accomplished.

TASK 3.2: Reference Site Evaluation
The contractor shall conduct a reference site evaluation which shall include a review of the reference site criteria relative to other published reference site thresholds and identification processes. The evaluation shall characterize the Wisconsin reference sites so that thresholds selected from the distribution of reference index values shall be interpreted in the context of minimal disturbance or least disturbance.

TASK 3.3: Interpretation of Thresholds
The contractor shall conduct a review of the proposed thresholds using one of the appropriate techniques beginning with proportional odds modelling as described below and based on the data made available from Wisconsin DNR.

The proportional odds modelling shall provide graphic and tabular interpretations of probabilities that specific index values are associated with reference or stressed site categories. This could be used to refine or interpret thresholds of biological impairment by quantifying probable error rates. For example, a reference site with a low index value (lower than a selected threshold) would be an error. For threshold selection, the modelled rate of error for reference categories can be quantified along the index scale.

Additional analyses such as deviation from reference, taxa loss, comparison to stressor gradients, change-point analysis, and regional comparisons shall be conducted as needed to clarify threshold interpretations.

TASK 3.4 Assessment of Proposed Biological Thresholds
The contractor shall provide an evaluation of reference site identification in the context of minimal and least disturbed conditions, the results of the proportional odds model including graphics and tabular probabilities in relation to reference designations and the results of any additional analyses as needed to further interpret possible thresholds. A draft and final synthesis report shall be provide including all deliverables.

TASK 4: Region 5 Macrophyte Indicator Development

TASK 4.1: Data management
The contractor shall compile land use, chemistry, and physical habitat data, forming one database that includes stressor information on all lakes sampled during the National Lake Assessment (NLA) in 2007, 2012 and 2017 (if available). Build on existing efforts (i.e. Lake Cat, NLA) where available. The database shall capture information on stressors at both the watershed and local (nearshore or buffer) spatial scales. The contractor shall also assemble data collected during the 2012 NLA on macrophyte communities.

TASK 4.2: Disturbance gradient
The contractor shall create a continuous disturbance index integrating multiple forms of disturbance assembled under Task 1. This index shall allow lakes to be placed on a single gradient of anthropogenic disturbance and may follow existing index development templates (Danz et al. 2007, Falcone et al. 2010). The contractor shall document methodology and integrate the index with the aforementioned bioassessment database.

TASK 4.3: Reference conditions and lake classification
Categorize lakes by hydrology (drainage vs seepage based on the presence of a permanent surface water outlet) and ecoregion. Within these lake categories, designate a set of region 5 reference-condition lakes to represent either undisturbed or least-impacted conditions. The contractor shall document reference-condition methodology and include reference-condition data in the aforementioned bioassessment database.

TASK 4.4: Exploratory analysis
The Contractor shall explore univariate relationships between macrophyte data and anthropogenic disturbance data for the 2012 NLA lakes. The contractor shall choose to use graphical displays as well as simple statistical models to determine whether macrophyte growth form data is responsive to a) single measures of anthropogenic disturbance, b) the disturbance index, and c) categorical reference condition status. Responsiveness may include regionalization or classification steps explored under Task 3.3.
Macrophyte response variables include:

- Maximum depth of colonization (MDC)

- Lakewide frequency of occurrence of each growth form (Number of sites where present divided by all sampled points)
- Littoral frequency of occurrence of each growth form (Number of sites were present divided by number of sites more shallow than observed MDC)
- Vegetated frequency of occurrence of each growth form (Number of sites where present divided by number of vegetated sites)
- Littoral mean number of growth forms per point (mean number observed at each point more shallow than observed MDC)

This information shall be joined to and submitted with bioassessment database created under Task 1. Macrophyte metrics shall include metadata sufficient to understand the data compiled and steps necessary to repeat any calculations.

TASK 4.5: Assessment of development potential
The contractor shall provide the results of this exploratory analysis to EPA. An accompanying methods summary shall provide enough detail to clearly describe the exploratory steps taking along with an initial assessment of findings. Descriptions of patterns observed and any compelling evidence of responsiveness or lack of responsiveness should be presented to inform the decision of whether to pursue a macrophyte-based bioinidicator. Any opportunities, data limitations or other barriers to indicator development should be clearly reviewed. In the evaluation of the exploratory work, the contractor shall propose a new approach if warranted or lay out additional opportunity areas.

E. SCHEDULE OF DELIVERABLES

TASK	DELIVERABLE	DUE DATE
1	Participate in conference calls as necessary	Ongoing
2	QAPP	November 2017
3.1	Data management	November 2017
3.2	Reference site evaluation	November 2017
3.3	Interpretation of thresholds	November 2017
3.4	Assessment of proposed thresholds draft report	November 2017
	Assessment of proposed thresholds final report	December 2017
4.1	Data management Bioassessment database for 2007, 2012, 2017 (if available) NLA lakes (land use, water chemistry, physical habitat)	December 2017
4.2	Reference condition development	January 2018
4.3	Lake classification (ecoregion x hydrology)	February 2018
4.4	Report on exploratory analysis	April 2018
4.5	Assessment of index development potential	June 2018

F. REPORTING

All documentation and reporting under this Work Assignment shall be in compliance with contract requirements.

G. DELIVERABLES AND GENERAL PERFORMANCE:

The contractor shall, when requested by the WACOR provide supporting documentation when EPA is reviewing draft deliverables to facilitate EPA review and approval of the Contractor's work. Documentation shall include the electronic files and detailed, written explanation of all steps and decisions. The Contractor is expected to comply with this request when it is received from the WACOR regardless of whether such a request is described in the individual tasks of this PWS. The Contractor is expected to furnish this information in such manner that no proprietary software will be needed for EPA to read, interpret, replicate or model any work product of this agreement, unless otherwise noted in this PWS or by written permission of the EPA WACOR. The objective is that anyone with the appropriate skill level can use the information produced under this Work Assignment to check or duplicate the Contractor's work for replication and/or verification. With this understanding of how this Work Assignment's data will be used, any elements essential to successfully replicating analysis shall be provided to EPA in a commonly-used format.

The Contractor shall provide both scientific/technical and editorial review as defined in section 2.6 of the Prime Contract Performance Work Statement on any Work Assignment draft product before submission to the EPA WACOR for review. This process does not need to be performed by an independent peer reviewer. It is expected that all editorial review comments will be addressed before deliverables are furnished to the EPA WACOR for review (in the case of draft deliverables) or acceptance (in the case of final deliverables); and that questions raised by scientific/ technical review will be either addressed or discussed with the EPA WACOR prior to the contractor furnishing draft deliverables.

EPA anticipates that the contractor's work will be judged "satisfactory" according to the Quality Assurance Surveillance Plan (QASP) if WACOR edits to deliverables are no more than ten percent (10%) of the content of any draft deliverable, or less than two percent (2%) of any final deliverable. In addition, EPA anticipates that the contractor's work will be judged "satisfactory" according to the QASP if less than ten percent (10%) of the pages of written final deliverables contain Work Assignment CORs edits for such things as grammar, punctuation and format. The EPA WACOR can upon request furnish a copy of the EPA correspondence manual for the contractor's use.

Upon receipt of written technical direction from the WACOR, the contractor shall furnish:

- **all deliverables (draft and final) to EPA shall be furnished in an electronic version** and in an electronic format that EPA can support.

- **all final deliverables to EPA shall include one (1) electronic copy and two (2) paper copies.** All final deliverables shall be prepared according to EPA publication guidelines and shall be compliant with Section 508 of the **Americans with Disabilities Act.**

All submittals to EPA shall be formatted as described below.

Electronic submissions shall be made in the following manner: electronic Microsoft Word© for any written reports, summaries or analysis documents, Microsoft Excel© format for any and all spreadsheets, raw data, coding and modeling work (including all model runs with essential data to replicate model runs), and Microsoft Access© format for any and all databases or for other data as is approved by the EPA WACOR in writing. **Final electronic submissions** shall be on Compact Disk (CD) or Digital Versatile Disc (DVD). The contractor may utilize an FTP, but only if the EPA WACOR gives written permission. Every electronic document and all of the sections, text, graphs, charts or figures shall be unlocked, open and editable so that EPA may make further changes.

Final paper submissions shall be made in the following manner: two (2) separate and identical copies of all deliverables must be submitted; each separate copy includes all the products due at that date (i.e., Task 1, 2, etc.), and must be submitted in one (1) or more bound volumes, as appropriate, with a title page, an executive summary describing the purpose and content, and an index, located inside the front cover of each bound volume, and electronic copies enclosed in envelopes (or other suitable means) bound in the respective volume. Although PDF versions of materials may be additionally submitted per the contractor's prerogative, neither electronic nor paper PDF versions will be acceptable as any final work product.

Appropriate electronic format that is supported by EPA and printing of all GIS data layers, maps, photos, bench sheets and other written material not easily printed or saved in the above formats will be discussed and a format agreed upon with the EPA WACOR prior to submittal by the contractor.

H. ANTICIPATED TRAVEL

No travel anticipated under this contract.

I. CONTRACTOR IDENTIFICATION

Contractor personnel shall always identify themselves as Contractor employees by name and organization and physically display that information through an identification badge. Contractor personnel are prohibited from acting as the Agency's official representative.

The Contractor shall refer any questions relating to the interpretation of EPA policy, guidance, or regulation to the EPA WACOR.

References:

Borman, S. C. 2007. Aquatic plant communities and lakeshore land use: changes over 70 years in Northern Wisconsin Lakes. Dissertation. University of Minnesota, Minneapolis.

Borman, S. C., S. M. Galatowitsch, and R. M. Newman. 2009. The effects of species immigrations and changing conditions on isoetid communities. Aquatic Botany **91**:143-150.

Danz, N. P., G. J. Niemi, R. R. Regal, T. Hollenhorst, L. B. Johnson, J. M. Hanowski, R. P. Axler, J. J. H. Ciborowski, T. Hrabik, V. J. Brady, J. R. Kelly, J. A. Morrice, J. C.

Brazner, R. W. Howe, C. A. Johnston, and G. E. Host. 2007. Integrated Measures of Anthropogenic Stress in the U.S. Great Lakes Watershed. Environmental Monitoring and Assessment **39**:631-647.

Egertson, C. J., J. A. Kopaska, and J. A. Downing. 2004. A century of change in macrophyte abundance and composition in response to agricultural eutrophication. Hydrobiologia **524**:145-156.

Falcone, J. A., D. M. Carlisle, and L. C. Weber. 2010. Quantifying human disturbance in watersheds: Variable selection and performance of a GIS-based disturbance index for predicting the biological condition of perennial streams. Ecological Indicators **10**:264-273.

Mikulyuk, A., M. Barton, J. Hauxwell, C. Hein, E. Kujawa, K. Minahan, M. E. Nault, D. L. Oele, and K. I. Wagner. 2017. A macrophyte bioassessment approach linking taxon-specific tolerance and abundance in north temperate lakes. Journal of Environmental Management **199**:172-180.

Radomski, P., and T. J. Goeman. 2001. Consequences of human lakeshore development on emergent and floating-leaf vegetation abundance. North American Journal of Fisheries Management **21**:46-61.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-24

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Surface Water Quality Model As

Contractor: TETRA TECH, INC.

Specify Section and paragraph of Contract SOW: Section 3 Paragraph 3

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/11/2017 To 06/30/2018

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 08/05/2014 To 06/30/2018 — Cost/Fee: — LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: — Cost/Fee: — LOE:

Cumulative Approved: — Cost/Fee: — LOE:

Work Assignment Manager Name: Ashley Allen (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1012 FAX Number:
Project Officer Name: Thomas Gardner (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-0386 FAX Number:
Other Agency Official Name: Jason Gildea (Signature) (Date)	Branch/Mail Code: Phone Number: 406-457-5028 FAX Number:
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2002 FAX Number:

PERFORMANCE WORK STATEMENT
Tetra Tech Contract No. EP-C-14-016
Work Assignment # 3-24

A. TITLE: Surface Water Quality Model Assessment and Support

B. Work Assignment Contracting Officer Representative (WACOR)

NAME: Ashley Allen
TITLE: Biologist
PHONE: 202-566-1012
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Alternate Work Assignment Contracting Officer Representative

NAME: Jason Gildea
TITLE: Hydrologist
PHONE: 406-457-5028
E-MAIL: gildea.jason@epa.gov

C. PERIOD OF PERFORMANCE: Date of issuance through June 30, 2018

D. TASKS:

TASK 1 – Work plan and monthly progress reports

The Contractor shall develop a detailed work plan and cost estimate for the tasks outlined in this work assignment (WA). The plan shall be submitted in accordance with the requirements noted in Contract EP-C-14-016. The plan shall contain, but is not limited to, a work-flowchart, schedule, staffing plan, qualifications of proposed staff, budget, and level of effort (LOE) estimates. P-level distributions, hours, and funds required should be provided for each task. Costs greater than $100.00 shall be itemized in detail. Prior to the submission of the work plan, the Contractor shall consult with the EPA WACOR as needed via conference call on any issues needing clarification.

This task also provides for creation of monthly progress and financial reports by the Contractor. Monthly financial reports shall include a table with the invoice LOE and costs broken out by the tasks in this WA. The monthly progress reports shall also indicate in a separate Quality Assurance (QA) section whether significant QA issues have been identified and how they are being resolved.

TASK 2 – Quality Assurance

Background: Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1 A2 (May 2000), and implementing guidance CIO-2105-P-01-0 (May 2000). All projects that involve the generation, collection, analysis and use of

environmental data shall have an approved Quality Assurance Project Plan (QAPP) in place prior to the commencement of the work.

Task Description: The activities in this work assignment involve gathering, evaluating, analyzing, or otherwise using existing environmental data (also known as "secondary" use of data). Therefore, the Contractor shall prepare a QAPP that describes specific QA strategies that shall be used when performing environmental data operations to support the objectives of this work assignment. The Contractor shall write the QAPP using active voice, and shall ensure the QAPP provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment, including typical questions that shall be answered when collecting information on the status of available surface water quality models
- The type of data to be collected, generated, and used under this work assignment to support the project objectives—including data from search engines, federal databases, EPA data bases—as a well as a rationale for when those databases are appropriate and what data available in each shall support the project
- The quality objectives needed to ensure the data shall support the project objectives, and
- The QA/QC activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

The Contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the Contractor may include this as a part of the contract-required monthly financial/technical progress report.

Within 15 days after submittal of the work plan, the Contractor shall prepare and submit a QAPP. EPA will review the submitted QAPP and provide the Contractor with written approval or comments within 15 days of receiving the Contractor's submission. If EPA requests changes, the Contractor shall revise the submitted QAPP within 10 days of receipt EPA comments, unless otherwise instructed by the EPA WACOR. All activities performed under this work assignment prior to submission and approval of the QAPP shall comply with the QA/QC strategies documented in the Contractor's approved QAPP. (The QAPP requirements shall be applied retroactively to this period that lasts no more than 50 days from submission of the Contractor's work plan.) If the QAPP is not fully approved (signed) within 50 days after submission of the Contractor's work plan, the Contractor shall stop performing any activities that that involve the collection, generation, evaluation, analysis or use of environmental data, unless explicit written permission to continue doing so is provided by the EPA WACOR.

If the EPA WACOR issues written technical direction under this WA that requires the Contractor to gather, evaluate, analyze, or otherwise use data other than existing environmental data, the Contractor shall revise the QAPP as needed and submit it to EPA for review and approval.

TASK 3 – Model Assessment

Background: EPA's Water Modeling Workgroup (WMW) is tasked with providing support for core surface water quality modeling tools used in Clean Water Act programs. The WMW has identified a set of modeling tools that are widely used to support developing Total Maximum Daily Load (TMDL) plans, informing National Pollutant Discharge Elimination System (NPDES) permit conditions, analyzing EPA policy effects, and other water quality analyses. An assessment of the status of each modeling tool is needed to help EPA identify gaps in support and capabilities that might warrant WMW activity in the future.

Task Description: The Contractor shall provide a report documenting the status of the surface water quality modeling tools listed below. The report shall contain the following information:

Model developer/steward
- lead developer(s) and affiliation
- maintenance status and funding source

Model Status (including all web links)
- model code language
- current model version and year of release
- previous versions still available for download and year of release
- identify all versions as proprietary or non-proprietary

Accessibility (including all web links)
- model executable (all available versions)
- source code (all available versions)
- user community portal (if any)
- access points-of-contact if not posted to web

Documentation and Training Materials (including all web links)
- model theory documentation (including model version and publication year)
- user manual (including model version and publication year)
- example publications of model applications (5 most recent papers/reports)
- training materials

At a minimum, the following water quality models and tools shall be included in the assessment:

1. AGNPS - [USDA NRCS]
2. AQUATOX – [EPA OW, ORD]
3. BASINS – [EPA ORD]
4. BATHTUB - [USACE]
5. CE-QUAL-ICM - [USACE]
6. CE-QUAL-W2 - [USACE/Portland State Univ.]
7. CORMIX - [MIXZON, Inc.]
8. EFDC - [Tetra Tech and EPA]
9. HAWQS - [EPA, Texas A&M, USDA]
10. HSPF - [AquaTerra, EPA, USGS, State agencies]

11. LSPC - [Tetra Tech and EPA Regions (R3, R4, R8)]
12. QUAL2Kw - [EPA/Tufts Univ./Washington Dept. of Ecology]
13. SPARROW - [USGS]
14. SURFACE WATER TOOLBOX - [EPA/USGS]
15. SWAT– [Texas A&M, USDA]
16. SWMM– [EPA ORD]
17. WASP - [EPA Region 4]

The EPA WACOR or the Contractor, in consultation with EPA, may identify additional models to be included in the list. EPA will specify additional models to be added to the list through written technical direction.

The deliverable shall be a Microsoft Word report that contains the information specified above. The Contractor shall assume that they will produce one draft report and one final report.

Technical Expertise Required: The key technical individual(s) who work on this assignment shall have a working knowledge of surface water quality modeling.

TASK 4 – Model Support

Background: EPA's Water Modeling Workgroup (WMW) provides support for core water quality modeling tools used in Clean Water Act programs. The purpose of Task 4 is to prioritize surface water quality modeling tool needs as clarified, in part, by the information collected under Task 3 and to subsequently implement upgrades for models and model support tools. The Contractor shall support EPA during the modeling tool needs prioritization process. The Contractor shall then implement selected modeling tool upgrades as specified through written technical direction from the EPA WACOR.

Task Description: The Contractor shall provide assessments of surface water quality model priorities and shall update and/or upgrade surface water quality modeling tools as directed by the EPA WACOR through written technical direction. Examples of the types of upgrade/update activities EPA might direct the Contractor to carry out include:

- Update model code
- Review and update model manuals
- Review and update model distribution sites
- Compare model outputs
- Test/debug models
- Create training materials

The EPA WACOR shall provide written technical direction to the Contractor describing the specific assessment, update, and/or upgrade activities required after receiving and reviewing the final deliverable from Task 3. EPA estimates that the Contractor shall expend up to approximately 400 hours of labor to complete this task.

E. SCHEDULE OF BENCHMARKS & DELIVERABLES:

Task/ Subtask	DELIVERABLE	Schedule
1	**Work Plan**	As per Contract EP-C-14-016 requirements
2a.	**QAPP**	Due within 15 days after Work Plan submittal
2b.	**Revised QAPP reflecting EPA comments, if needed**	Due within 10 days of receipt of EPA comments on initial submission
2c.	**Monthly reports of QA work performed (may be included in Contractor's monthly progress report)**	Monthly throughout WA period of performance
3a.	**Draft summary report on surface water quality models**	Due September 29, 2017
3b.	**Final summary report on surface water quality models reflecting EPA comments**	Due November 3, 2017
4	**Model Support**	Due as requested by the EPA WACOR via written technical direction

Draft written deliverable(s) for review by the EPA WACOR shall be prepared in accordance with the schedule in the WA Schedule of Benchmarks and Deliverables.

Final written deliverable(s) shall be furnished in accordance with the schedule in the WA Schedule of Benchmarks and Deliverables, after written comments are received from the EPA WACOR.

TRAVEL
No travel is anticipated under this work assignment.

PRINTING
All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

CONTRACTOR IDENTIFICATION
Contractor personnel shall clearly identify corporate affiliation at the start of any meeting or training workshop. While attending EPA-sponsored meetings, conferences, symposia, etc., or while on a Government site, Contractor personnel shall wear a badge that identifies the individual as a contractor employee. Contractor personnel are strictly prohibited from acting as a representative of the Agency meetings, conferences, symposia, etc.

MEETINGS, CONFERENCES, TRANINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than $20,000, shall be obtained by the EPA Contract Level COR as needed and provided to the Contracting Officer. Work under conference-related activities and expenses shall not occur until this approval is obtained and provided by the EPA Contract Level COR.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-26

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-14-016	08/05/2014 To 06/30/2018 Base Option Period Number 3	Use of Bioassessment Tools to

Contractor	Specify Section and paragraph of Contract SOW
TETRA TECH, INC.	3.3, 3.4, 3.10

Purpose:
- ☒ Work Assignment
- ☐ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 09/29/2017 To 06/30/2018

Comments:

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 08/05/2014 To 06/30/2018		
This Action:		
Total:		

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Susank Jackson (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-1112
	FAX Number:	
Project Officer Name: Thomas Gardner (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-0386
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Courtney Stallworth (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2002
	FAX Number:	

PERFORMANCE WORK STATEMENT
CONTRACT EP-C-14-016
WORK ASSIGNMENT 3-26

Title: Use of Bioassessment Information and Tools to Support Water Quality Management Programs

Work Assignment Contracting Officer Representative (WACOR):
Susan Jackson
Health and Ecological Criteria Division
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U.S. Environmental Protection Agency
1200 Pennsylvania Avenue (4304T)
Washington, DC 20460
Tel: (202)566-1112, Fax: (202)566-1140 Jackson.Susank@epa.gov

Alternate WACOR:
Janice Alers-Garcia
Health and Ecological Criteria Division
Office of Water, Office of Science and Technology
U.S. Environmental Protection Agency
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Washington, DC 20460
Tel: (202)566-0756, Fax: (202)566-1140
Alers-Garcia.Janice@epa.gov

Contract PWS: 3.3, 3.4, 3.10

Period of Performance: Date of Issuance – June 30, 2018

The purpose of this work assignment is to support development of biological assessment indicators, biological condition gradient and biological criteria by Virginia, West Virginia and Maryland water quality management programs (task 3).

Background Information:
The Clean Water Act (CWA) directs EPA to restore and maintain the biological integrity of the Nation's waters. Under the CWA, the EPA has established a Water Quality Standards (WQS) Program to help achieve this objective. The EPA is developing and testing methods to support incorporation of bioassessment information, methods and approaches, such as the Biological Condition Gradient (BCG), into EPA, State and Tribal Water Quality Management Programs.

The Virginia Department of Environmental Quality (VDEQ) conducted a calibration exercise in 2015-2016 to develop a BCG in the Central Appalachian ecoregion (69) of Virginia, West Virginia, and Kentucky. Additional model evaluations were conducted in the Northern Piedmont ecoregion (64). The BCG calibration resulted in models for

macroinvertebrates and fish that were precise in replicating expert ratings of biological condition. These calibrations were intended as pilot projects to test feasibility of BCG calibrations statewide and region wide, feasibility of both VA-specific calibrations and feasibility of applying models across state lines and state programs. With the successful pilot project completed, VDEQ is now preparing for expansion of the BCG throughout the state and region.

To expand the development and application of the BCG in Virginia and the region, the taxonomic attributes for fish and macroinvertebrates need to be explored to determine whether statewide attributes or regional attributes can be applied. Ecoregion-specific attributes were assigned in the previous exercises. Instead of assigning ecoregion-specific attributes for the BCG expansion, it would be more efficient to determine whether attribute assignments would apply statewide or to broader regions of the state and region. Task 2 provides for contractor support to develop and test attributes in relation to natural and stressor conditions in ecoregions in Virginia, including shared ecoregions with West Virginia and Maryland.

If needed for purposes of technical clarification, use of technical directive will be in writing and sent to the contracting officer and project officer.

Quality Assurance:
Tasks 2 in this work assignment requires the use of existing data. Consistent with the Agency's quality assurance (QA) requirements, the contractor shall comply with 1) the EPA (SHPD) approved Tetra Tech QMP. The task-specific quality assurance requirements for use of existing data should follow the quality assurance requirements for use of existing data as described in attached Appendix F (OST Detailed Guidance for QAPP Elements in an Existing Data Project). If needed, the contractor shall hold a conference call with the EPA WAM to discuss any quality assurance issues needing clarification.

The project specific quality assurance requirements must be addressed in the work plan and monthly progress reports as specified under Task 1. Any additional quality assurance requirements must be addressed in the work plan and monthly progress reports and, if needed. A final QA statement detailing the QA/QC procedures for compiled data and any summaries generated in this work assignment are required when all tasks are completed.

If model development is necessary, the contractor also shall fulfill the requirements described in National Risk Management Research Laboratory (NRMRL) QAPP Requirements for Research Model Development and Application Projects (10/2008) for applicable areas of Task 3. The NRMRL QAPP requirements are included in Appendix A of this work assignment.

Performance Work Statement (PWS):

Task 1: Monthly Progress Reports and Administrative Support
The contractor shall develop a work plan to address tasks in this work assignment. The work plan shall include a schedule, staffing plan, level of effort (LOE), and cost estimate for each task, the contractor's key assumptions on which staffing plan and budget are based, and qualifications of proposed staff. All P levels, hours and total dollars for each task shall be provided, and other direct costs greater than $100.00 shall be itemized in detail. The contractor shall provide their job number with all invoices to facilitate their expediency.

This task also includes monthly progress and financial reports. The monthly progress report shall indicate, in a separate QA section, whether significant QA issues have been identified and how they are being resolved. QA procedures for data use and analyses, monthly progress reports and final reports shall be followed as described above in Quality Assurance Section. Monthly financial reports shall include a table with the invoice LOE and costs broken out by the tasks in this work assignment.

Task 2: Development of Regional Attribute Assignments
The contractor shall provide technical support to the USEPA WACOR to analyze databases provided by Virginia, Maryland and West Virginia in preparation for an expert workshop. The purpose of the expert workshop will be to define response stressor relationships across difference ecological regions and assign BCG attributes for tolerance to different species. For example, there might be different BCG attribute assignments for sensitivity to stressors for mountain, Piedmont, and coastal plains settings because the stressors and acclimation conditions might differ among such regions. Specific tasks shall include:

1. Conduct introductory webinar: The contractor shall introduce experts to the BCG attributes and the role of the attributes in the BCG calibration process and the expectation for expert review and comment. This will include an introduction to project goals, overview of the BCG with special attention to attribute definitions, and include assignment of pre-workshop homework (e.g. test data analysis exercise).

2. Facilitate a BCG attribution expert workshop: The contractor shall facilitate a 2 or 3-day expert workshop to discuss natural and stressor settings, and to assign BCG attributes to fish and macroinvertebrates either statewide or in three broad regions. The contractor shall prepare workshop materials including agenda, Excel worksheets, and presentations. The workshop will occur in Virginia or West Virginia in late winter/early spring (e.g. February through April), with the specific facility to be determined based on determination by the USEPA WACOR of available government meeting sites.

3. Conduct follow up webinars and analysis: The contractor shall facilitate up to 2 webinars per assemblage (benthic macroinvertebrate and fish assemblages) to present results to the expert panel members and elicit review and comment, including identifying and then reconciling discrepancies in attribute assignments and stressor conditions. The post workshop analyses will be to relate stressors to taxa within each attribute group and among natural regions or classes.

4. Write report: The contractor shall summarize the BCG attribute assignment process, results, and application.

Travel: Travel shall be required for the contractor to facilitate the expert workshop to be held in either Virginia or West Virginia. The workshop will be a two to three day workshop.

Deliverable, June 30, 2018: Report on BCG attribute assignment process, results, and application.

Deliverables and Schedule

In any documentation, the contractor shall clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources, and data that support the results and any recommendations.

Task 1: Work plan

Workplan for review and approval	Per Contract Requirements

Task 2: Development of Regional Attribute Assignments

Report on BCG attribute assignment process, results, and application	September 30, 2018

Appendix A National Risk Management Research Laboratory (NRMRL) QAPP Requirements for Research Model Development and Application Projects (10/2008)[1]

General Requirements: Include cover page, distribution list, approvals, and page numbers.

1. COVER PAGE (MODEL DEVELOPMENT AND MODEL APPLICATION)

   Include the Division/Branch, project title, revision number, EPA technical lead, QA category, organization responsible for QAPP preparation, and date.

2. PROJECT DESCRIPTION AND OBJECTIVES (MODEL DEVELOPMENT AND MODEL APPLICATION)

   In this document, "project" can mean (a) development or substantial modification of a model for application to address a general problem; (b) application of an existing model (including minor modification to the existing model) to address a specific problem; or (c) a development or substantial modification and application of a model to address a specific problem.

   2.1. State the purpose of the project and list the project objective(s). Indicate whether a new model will be developed or an existing model will be used.

   2.2. Describe the problem, the data to be generated by the model, how the data will be used to address the problem, and the intended users of the data. Describe the environmental system/setting to be modeled, where the model will be applied, and the circumstances and scenarios to be considered for the modeled system.

3. ORGANIZATION AND RESPONSIBILITIES (MODEL DEVELOPMENT AND MODEL APPLICATION)

   3.1. Identify all project personnel, including QA, and related responsibilities for each participating organization, as well as their relationship to other project participants.

   3.2. Include a project schedule that includes key milestones.

4. MODEL SELECTION (MODEL APPLICATION ONLY)

   4.1. Discuss model selection with respect to how it will be used and how it is consistent with the project objectives. Include fundamental details such as whether the model will be used to predict the world beyond the model or in scenario analysis of the model itself. Describe the limits to where the model is applicable.

   4.2. Provide a description of the model attributes/capabilities required for the project. This description should include hardware requirements and restrictions. Provide an overview of the candidate model attributes.

   Model origin and its original purpose, if applicable

   Model structure (e.g., stochastic vs. deterministic, structural framework)

   Parameters and variables

   The algorithms and equations that have been developed to support the model theory, along with the sources of the algorithms

   Spatial extent (individual, group, population)

   Spatial resolution (location independent/dependent, dimensionality)

[1] http://www.epa.gov/nrmrl/qa/pdf/ResearchModelDevandAppQAPPNRMRLrev0.pdf

Temporal extent (length of modeling period)

Temporal resolution (time step)

4.3. Identify the model to be used or, if the model has not yet been selected, describe the process to be used or the selection of an existing model.

4.4. Identify specific requirements for application of the selected model for this specific purpose (e.g., current and appropriate data, parameter values, assumptions).

4. MODEL DESIGN (MODEL DEVELOPMENT ONLY)

4.1. Describe the conceptual model(s) for the system, including model parameters.

4.2. Identify algorithms and equations that have been developed to support the model theory, or if such equations are not already available, describe the process used to develop these equations.

4.3. Specify required sources for model databases and any requirements for these data (e.g., quality, quantity, spatial, and temporal applicability). If data sources are not currently known, describe the criteria used to identify sources. Describe how any data gaps will be filled.

5. MODEL CODING (MODEL DEVELOPMENT ONLY)

5.1. Discuss the requirements for model code development, where applicable.

5.2. Identify computer hardware and software requirements.

5.3. Discuss requirements for code verification.

6. MODEL CALIBRATION (MODEL DEVELOPMENT AND MODEL APPLICATION)

Calibration is the process of adjusting model parameters within physically defensible ranges until the resulting predictions give the best possible or desired degree of fit to the observed data. Calibration should be applied each time the model is modified.

6.1. Discuss how the model will be calibrated.

6.2. Identify the type and source of data (e.g., new data, existing data, professional judgment, expert opinion elicitation) that will be used to calibrate the model, including any requirements for the data (quality, quantity, and spatial and temporal applicability). If data sources are not currently known, describe the criteria used to identify sources.

6.3. Specify acceptance criteria which need to be met for the difference between predicted and observed data during model calibration, where applicable. The statistical methods (e.g., goodness-of-fit, regression analysis) or expert judgment to be used should also be discussed.

7. MODEL VERIFICATION (MODEL DEVELOPMENT AND MODEL APPLICATION)

Verification consists of comparing the predictions of a calibrated model with available data that were not used in the model development and calibration.

7.1. Discuss the approach to be used for model verification. Describe how the verification is appropriate based on the model's purpose. Identify the type and source of data (e.g., new data, existing data, synthetic test data sets, professional judgment, expert opinion

elicitation) that will be used to verify the model. If data sources are not currently known, describe the criteria used to identify sources.

7.2. Discuss the characterization of model uncertainty (model framework, model input, and model applicability) and sensitivity (model application only).

7.3. Describe any requirements (quality, quantity, and spatial and temporal applicability) for the data that will be used to verify the model.

7.4. Describe the approach used to determine if the independent data verify the model predictions. Specify the criteria which need to be met for the difference between predicted and observed data for the model to be considered to be verified. Discuss any statistical methods to be used (e.g., goodness-of-fit, regression analysis).

8. MODEL EVALUATION (MODEL DEVELOPMENT AND MODEL APPLICATION)

8.1. List and describe the qualitative or quantitative assessment process to be used to generate information to determine whether a model and its analytical results are of a quality sufficient for the intended use.

8.2. List and describe any independent/external evaluation and review of the model and model design, such as scientific peer review.

9. MODEL DOCUMENTATION (MODEL DEVELOPMENT AND MODEL APPLICATION)

Specify the requirements for model documentation. Good documentation includes:

Final model description, final model specifications (model development only), hardware and software requirements, including programming language, model portability, memory requirements, required hardware/software for application, data standards for information storage and retrieval

The equations on which the model is based (model development only)

The underlying assumptions

Flow charts (model development only)

Description of routines (model development only)

Data base description

Source code (model development only)

Error messages (model development only)

Parameter values and sources

Restrictions on model application, including assumptions, parameter values and sources, boundary and initial conditions, validation/calibration of the model, output and interpretation of model runs (model development only)

The boundary conditions used in the model

Limiting conditions on model applications, detail where the model is or is not suited

Changes and verification of changes made in code

Actual input data (type and format) used

Overview of the immediate (non-manipulated or –post processed) results of the model runs (model application only)

Output of model runs and interpretation

User's guide (electronic or paper)

Instructions for preparing data files (model development only)

Example problems complete with input and output

Programmer's instructions

Computer operator's instructions

A report of the model calibration, validation, and evaluation (model development only)

Documentation of significant changes to the model

Procedures for maintenance and user support, if applicable

10. REPORTING (MODEL DEVELOPMENT AND MODEL APPLICATION)
11. List and describe the deliverables expected from each project participant.
12. Specify the expected final product(s) that will be prepared for the project (e.g., journal article, final report).
13. REFERENCES

Provide the references either in the body of the text as footnotes or in a separate section.